# The Rifle Squads (Mechanized and Light Infantry)

TC 7-1

# PREFACE

PURPOSE. This **training circular** tells how to train rifle squads and how to **fight.** It provides the tools needed by the squad leader to maximize his combat power, minimize his vulnerabilities, and prepare his squad to win, **starting with the very first battle of the next war.**

SCOPE. This circular is designed for the leader **and members of** a rifle squad organic to any infantry platoon. There are several different types of squads, but they are discussed in terms of two categories which cover all types of squads: mechanized infantry and light infantry **(including rifle, airborne, ranger, and air assault infantry).** The word "he" is intended to include both male and female gender. Any exceptions to this will be so noted.

Because weapons, equipment, and organizations are continually being improved, specific organizations and types of equipment are not always given. Users must adapt the information in this manual to fit their specific situation.

RECOMMENDED CHANGES. You are encouraged to recommend improvements in this publication. Key your comments to a specific page, paragraph, and line of the text, and provide reasons for each comment to insure that we can understand and evaluate your recommendations. **Use DA Form 2028 (Recommended Changes to Publications)** in preparing your comments and send the form direct to: Commandant, United States Army Infantry School, ATTN: ATSH-I-V-TL, Fort Benning, GA 31905.

# THE RIFLE SQUADS (MECHANIZED AND LIGHT INFANTRY)

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*This publication supersedes TC 7-1, The Rifle Squad, 31 October 1974.

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## WINNING THE FIRST BATTLE OF THE NEXT WAR

The outcome of the next war may be decided in the first few days -- in the very first battle. During this battle, the mission of the infantry squad is to FIND THE ENEMY AND DESTROY HIM OR STOP HIS ASSAULT. The squad must be prepared to fight and win from the moment it goes into combat.

This demands that the squad learns HOW TO FIGHT now -- before the battle starts. This challenge can be met if the tactics and techniques described in this manual are mastered.

## THE INFANTRY IN MODERN BATTLE

The most demanding role on the battlefield is that of the infantry which must employ a wide variety of weapons systems in all types of operations. The infantry must also possess expertise in an enormous range of tactics and techniques which no other arm accomplishes and which are essential to the success of the combined arms team.

Infantrymen must be prepared to fight anywhere under any conditions; therefore, they must be among the world's toughest soldiers. Great demands will be placed upon their physical stamina, discipline, and resourcefulness. No other forces can share their hardship; no other forces can match their adaptability to any battlefield. All infantrymen have this demanding role, and they are grouped into two types: mechanized infantry and light infantry.

## LIGHT INFANTRY

Light infantry, including rifle, airborne, ranger, and air assault infantry, has great flexibility for employment over any type of terrain. It is organized and equipped to fight dismounted and is ideally suited for employment in areas where vehicles have difficulty moving. Because it can be readily deployed by many means, light infantry can be easily transported and inserted into the battlefield anywhere in the world. It is capable of defeating other light infantry forces on any type of terrain. In restricted terrain, such as built-up areas or forests, it can defeat enemy armor.

## MECHANIZED INFANTRY

Mechanized infantry is organized and equipped for armored warfare. Both its offensive and defensive operations are characterized by rapid changes in location and by rapidly changing from fighting mounted to fighting dismounted. The armored personnel carrier (APC) is the heart of the mechanized infantry squad and must be exploited whenever possible if the squad is to be successful on a fast-moving armor battlefield. Its carrier gives the squad the mobility, protection, and firepower it needs to operate as an equal partner in the tank-infantry team. This team is ideally suited for the modern battlefield. The tanks destroy enemy armor while the mechanized infantry destroys the enemy's infantry and antitank defenses. Antitank guides missiles (ATGM) also give the infantry the ability to add to the fire of tanks against enemy armor.

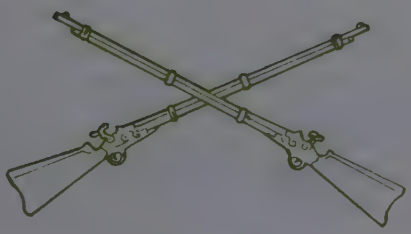
Mechanized infantry normally fights with tanks and, if the situation permits, the squad will fight mounted from its APC. When the squad is forced to fight dismounted, it will, wherever possible, be supported by fire from weapons on board the carrier. When the terrain is not suitable for tracked vehicles or visibility is severely restricted, mechanized infantry may have to fight dismounted without the support of its carriers.

## THE SQUAD LEADER

The squad must be prepared to fight successfully in all types of terrain from desert to frozen tundra and under all conditions of visibility and weather. The success of the squad's mission depends on the effectiveness of the individual soldiers of the rifle squad. Their effectiveness is determined by how well they are led. The squad leader has this challenging and difficult responsibility.

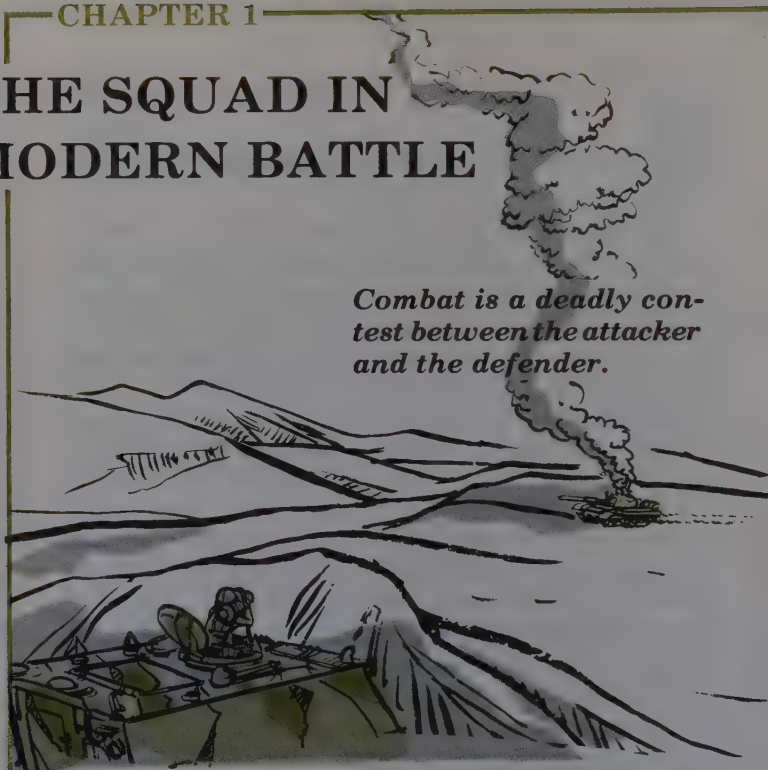
Army regulations* hold each squad leader responsible for the discipline, training, welfare, morale, control, and tactical employment of his squad, and the combat readiness of his squad's equipment. This training circular is designed to help you meet your responsibilities in the training and tactical employment of your squad.

***AR 600-20, chap 4, para 2e.**



CHAPTER 1

# THE SQUAD IN MODERN BATTLE



*Combat is a deadly contest between the attacker and the defender.*

The attacker attempts to find where the defender is weak, and concentrates superior combat power at weak points. The defender organizes his forces and fires to destroy the attacker where he concentrates. This has always been the nature of combat. But the battlefield on which the contest takes place is constantly changing. Squad leaders and their soldiers must know and understand the modern battlefield in order to survive and accomplish their missions.

## MODERN WEAPONRY DOMINATES THE BATTLEFIELD

The squad can expect to meet an enemy who is well-armed. He will have more weapons, and they will be more lethal than those used on other battlefields. Even small countries are now equipped with effective indirect fire weapons, heavy automatic weapons, and portable antitank missiles. Many have large numbers of modern armored vehicles. Modern weapons, both yours and those of the enemy, have greater range, accuracy, and killing power (lethality) than those of the past.

# GREATER

## RANGE

**enlarges the size of battlefield over which a target can be hit**

## ACCURACY

**gives gunners a better chance of first-round hits.**

## KILLING POWER (LETHALITY)

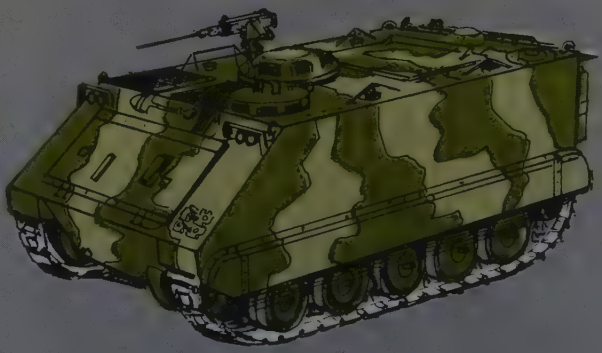
**increases the chance that if a target is hit it will be killed or destroyed.**

A modern **tank** can hit an opposing tank or infantry carrier from **FARTHER** away than ever before and has a much better chance of both **HITTING** and **KILLING** it on the first shot.

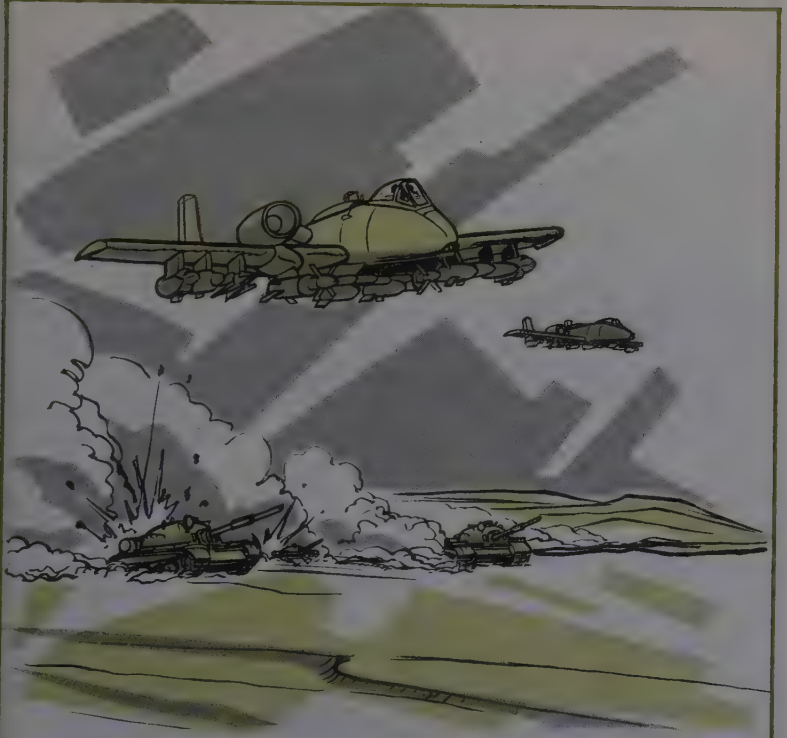
**WHAT CAN BE SEEN CAN BE HIT**

**WHAT CAN BE HIT CAN BE KILLED.**

**Artillery and other indirect fire weapons also have been improved.** They have greater range and casualty radius. Better fire control measures have improved the ability to mass large amounts of fire.



Many nations are now armed with highly mobile and sophisticated **infantry fighting vehicles.** These are equipped with a variety of weapons, including cannons, machineguns, firing port weapons, and guided missiles. They are specifically designed to support tanks by shooting at infantrymen.



The squad can expect to see **tactical aircraft** over the battlefield. Both US and threat forces use aircraft to engage targets beyond artillery range, to reinforce artillery fires, and to attack targets of opportunity. Artillery preparations will usually include coordinated strikes by tactical aircraft. After contact is established, tactical aircraft will fly close support missions for the ground forces. The squad must be prepared to defend against aircraft by using both active and passive measures.

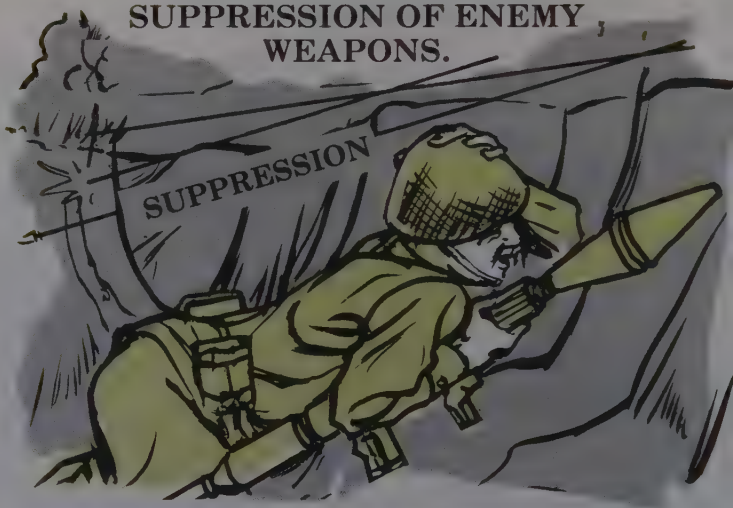
# THE SQUAD'S VULNERABILITY MUST BE REDUCED

Unless properly employed, the squad can be vulnerable to every weapon on the battlefield, from small arms and antipersonnel mines to heavy artillery, tanks, and airstrikes. But the rifle squad will survive on the modern battlefield and accomplish its mission if it uses all available means to reduce its vulnerability. This means making full use of **cover, concealment, and camouflage, and skillfully applying firepower to destroy or suppress enemy weapons.** The squad leader accomplishes this through training to develop teamwork. Teamwork is the ingredient that molds the squad into a fighting unit.

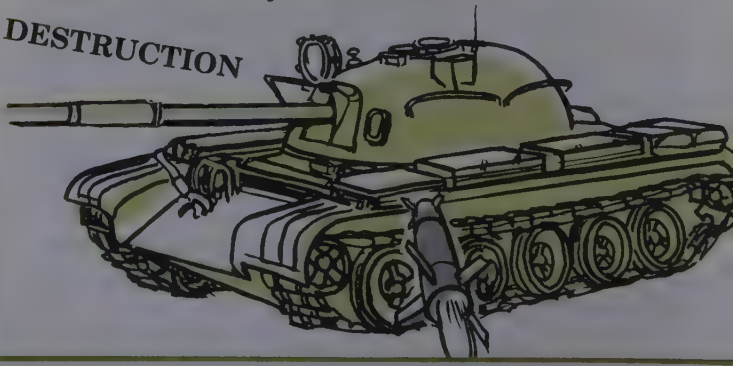
# COVER, CONCEALMENT AND CAMOUFLAGE

The squad must avoid exposure to enemy observation and fire. The terrain is the squad's best protection. At all times, the squad must use the natural cover and concealment afforded by the terrain. Hills, draws, depressions, woods, brush, and a wide variety of other features can protect either mounted or dismounted squads. Camouflage must be used to augment natural cover and concealment. Use cover, concealment, and camouflage together. This requires terrain appreciation by all squad members and good planning and control by the squad leader.

## DESTRUCTION AND SUPPRESSION OF ENEMY WEAPONS.




While proper use of the terrain offers protection from enemy weapons, the squad must also actively counter these weapons by destroying them, or suppressing them by placing fires and smoke on known and suspected enemy weapons positions. Suppression makes enemy gunners keep their heads down, and smoke obscures their vision so that they cannot deliver effective fire.



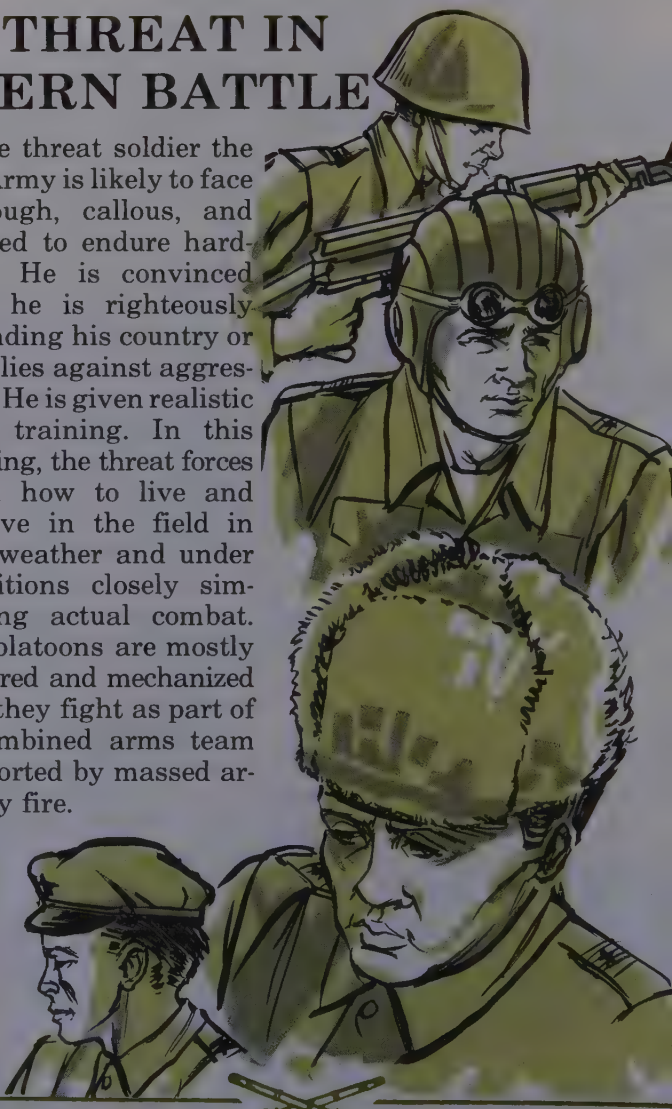
# THE THREAT OF NUCLEAR, BIOLOGICAL, AND CHEMICAL WARFARE

Many armies of the world have nuclear, biological, and chemical weapons that can be deadly to the infantryman unless he understands their effects and learns how to protect himself and to fight in an environment where they are used. If the infantryman can live and continue to effectively employ his weapons in this environment, he will be successful on the modern battlefield.

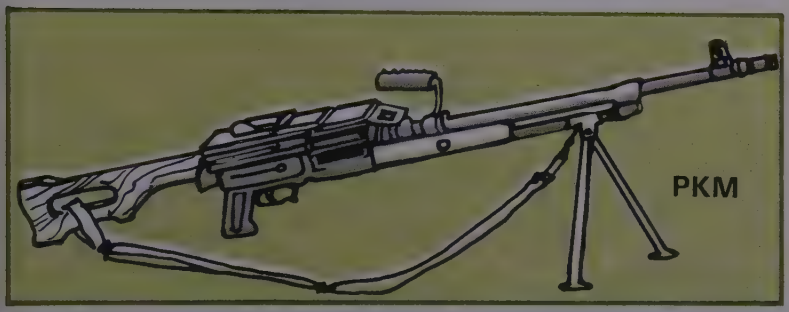
CHAPTER 2

# THE THREAT IN MODERN BATTLE

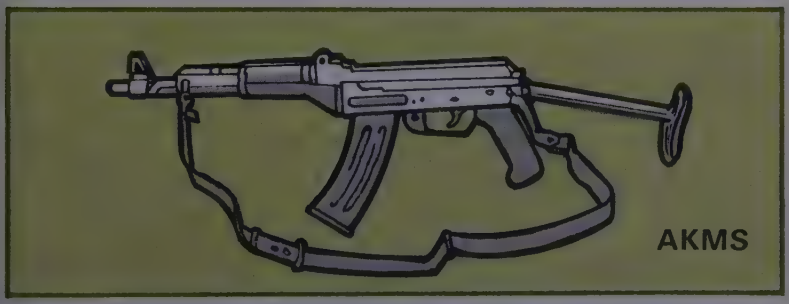
The threat soldier the US Army is likely to face is tough, callous, and trained to endure hardship. He is convinced that he is righteously defending his country or its allies against aggression. He is given realistic field training. In this training, the threat forces learn how to live and survive in the field in any weather and under conditions closely simulating actual combat. His platoons are mostly armored and mechanized and they fight as part of a combined arms team supported by massed artillery fire.



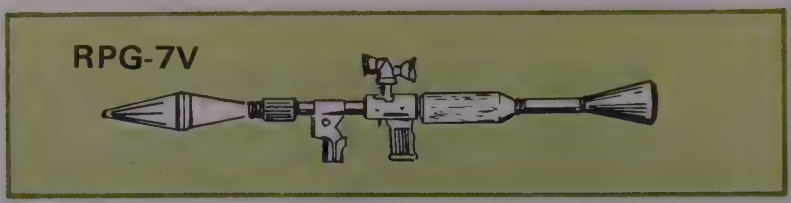
## HIS WEAPONS



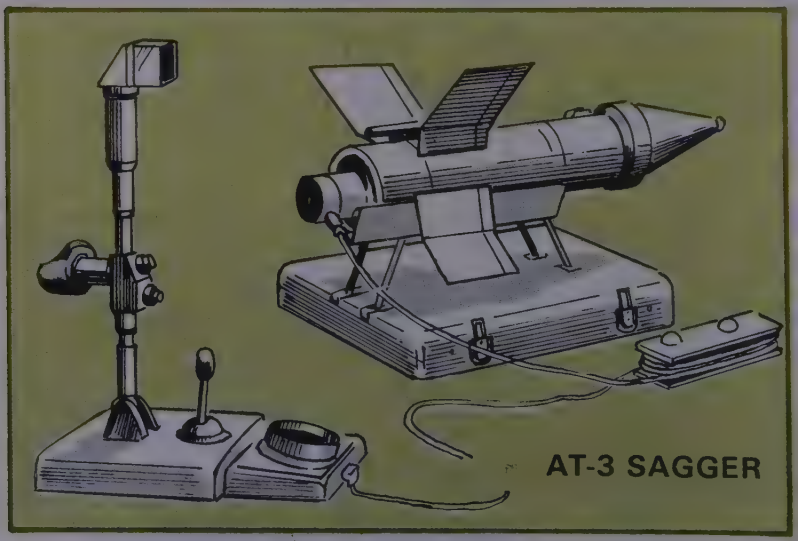

The PKM is the threat's primary light machine-gun. It can be either bipod- or tripod-mounted. This belt-fed weapon fires a 7.62-mm round to a maximum effective range of 1,000 meters.




The AKMS assault rifle is the threat's primary individual weapon. The AKMS and PKM are the firing port weapons for the BMP. The AKMS fires a 7.62-mm round (not the same as the PKM) to a maximum effective range of 300 to 400 meters, uses a 30-round detachable box magazine, and is equipped with a folding stock.

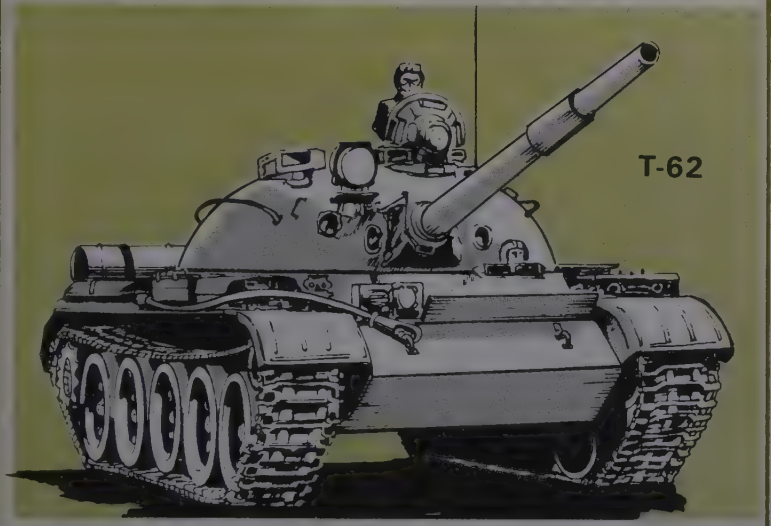



The threat has a variety of grenade launchers, but the most common is the RPG-7. This manportable weapon can be loaded and fired by one man, but an RPG-7 crew consists of two men: a gunner and assistant gunner. It can be **suppressed or defeated** by **attacking the gunner** with either direct or indirect fires. Maximum effective range is 300-500 meters.



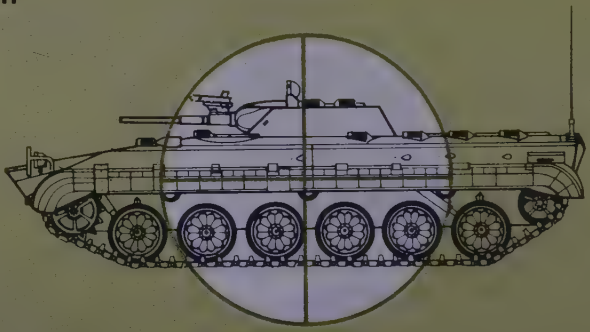

The Sagger plays a major role in the threat's antitank tactics. This wire-guided missile can be either vehicle or ground mounted. It has a minimum range of approximately 500 meters and a maximum range of 3000 meters. It can be suppressed with smoke or by direct or indirect fire. To defeat this weapon, attack the gunner with direct and indirect fire.

## ENEMY ARMORED VEHICLES




Tanks are the mainstay of the threat's combined arms team. The most common tank that you will face is the T-62. It has a 115-mm smooth bore main gun with an effective range of 1500 meters and a 7.62-mm machinegun mounted coaxially with the main gun. Some models also have a 12.7-mm machinegun mounted on the turret. ALL OF THESE WEAPONS CAN BE FIRED WHILE THE TANK IS MOVING. You can defeat this tank with your Dragon or LAWs. You can suppress it with smoke or force the tank commander to button up by firing at him with your automatic weapons or by requesting fires from supporting artillery and mortars. Since the frontal armor is too thick, engage the flanks, tops, or rear with your LAWs and 40-mm HEDP rounds. Use massed fires to achieve multiple hits and a high kill probability.

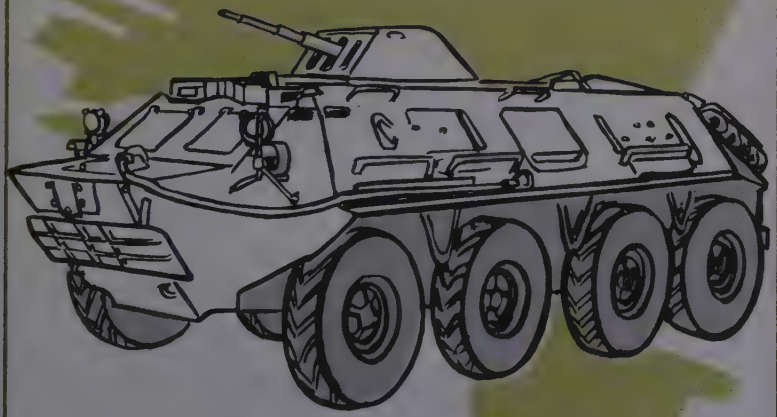
## BMP



The newest threat infantry armored fighting vehicle is the BMP. This is an amphibious vehicle. It mounts a 73-mm smooth bore main gun with an effective range of approximately 1000 meters and a 7.62-mm coaxially mounted machinegun. It also has an AT-3 Sagger ATGM and firing ports for its squad's weapons. You can suppress it with smoke. Artillery and small arms fire will force the squad to close its hatches, thus degrading its ability to acquire targets. The BMP is thin-skinned and is vulnerable to flank shots. (Note aiming point.)

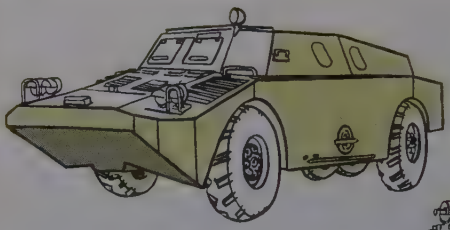
Your LAW will penetrate the vehicle from any angle, as will the 40-mm HEDP. Fire from your cal .50 machinegun will not penetrate the front or rear but will penetrate the flanks of the BMP out to approximately 200 meters. Multiple LAW, 40-mm HEDP, and cal .50 hits will kill the crew and disable the vehicle.

**BTR-60PB**

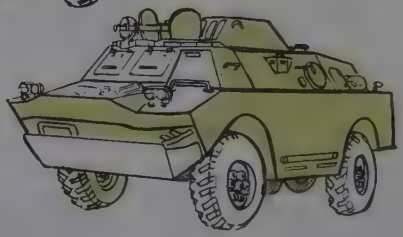


Another threat infantry armored personnel carrier is the BTR-60PB. It is an amphibious vehicle. It mounts a 14.5-mm and a 7.62-mm machinegun effective out to 2000 meters. You can suppress it with smoke. Artillery and small arms will force the squad to close its hatches, thus degrading its ability to acquire targets. Like the BMP, it is vulnerable to multiple hits from LAWs, 40-mm HEDP, and cal .50. When engaging with the cal .50, shoot at the flanks once the vehicle is within 200 meters.

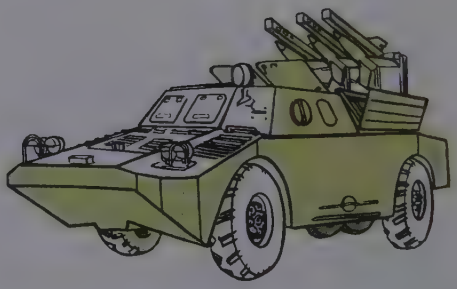
## BRDMs



COMMAND



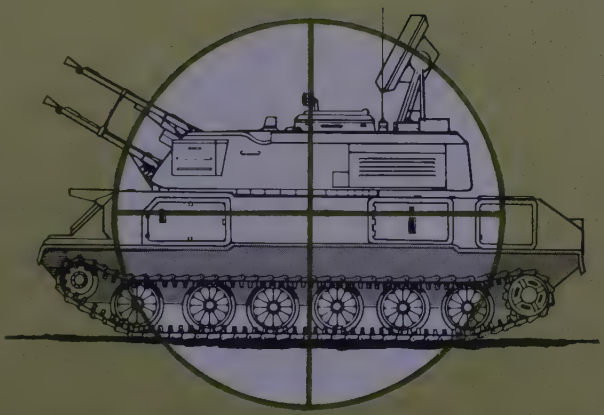
SCOUT



ATGM

Another carrier that you may face is the BRDM which may be armed with ATGMs, 7.62-mm and 14.5-mm machineguns. The BRDM is normally used as a command, scout, or ATGM vehicle. Its machineguns have an elevation and depression capability of +30 to -5 degrees. You can **suppress** it with smoke or with HE fires from FA or mortars. The ATGM gunner with his remote fire capability may be up to 80 meters from his vehicle. This carrier is thin-skinned and can be defeated in the same manner as the BMP and the BTR.

## ZSU-23-4



Though the ZSU-23-4 is primarily an air defense weapon, it is employed with forward forces and may be used in a ground role. It has four 23-mm automatic cannons with an effective range of 2500 meters against both ground and air targets. Use smoke to suppress and FA and mortars with VT fuze to damage the vehicle and kill the crew. This vehicle is thin-skinned, thus cal .50, LAWs, and 40-mm HEDP rounds will defeat it.

The threat employs large quantities of indirect fire support which ranges from 120-mm mortars to 203-mm guns. The threat's artillery is designed to also be used as direct fire weapons. For area coverage, he also employs multiple rocket launchers. The most common is the truck-mounted 122-mm multiple rocket launcher, which can fire 40 rounds simultaneously. This would completely saturate a squad defensive position. These massive fires will be lifted just prior to the enemy's final assault on your squad's position. Properly constructed and concealed fighting positions (or APCs to a lesser extent) are your best protection in the defense. In the offense, moving undetected, rapidly, and along covered routes will assist in protecting you from these fires.

## HOW THE THREAT ATTACKS

Our troops must be capable of defending against all types of threats. Of particular importance is our ability to defend against the most powerful type of attack -- that of combined arms supported by artillery fires and communications jamming. To defeat such a combined arms attack, the defenders must be able to fight three battles: ONE AGAINST ARMOR which includes motorized infantry, ONE AGAINST DISMOUNTED INFANTRY, and ONE AGAINST DISMOUNTED INFANTRY SUPPORTED BY THE FIRES OF TANKS AND APCs.

These battles may have to be fought at the same time or separately. When the threat can effectively suppress a defense, he will attempt to assault mounted. If he cannot suppress the defense, he will dismount his infantry to fight on foot while closely supported by fires from tanks, APCs, and artillery. In most situations, the defender still has the advantage. He knows the terrain, he can carefully site his weapons, and he can prepare good fighting positions.

**WELL-TRAINED AND WELL-LED SQUADS CAN DEFEAT THE THREAT ATTACK.**

## HOW THE THREAT DEFENDS

Threat forces consider the defense temporary. They emphasize depth, strongpoints, and counter-attack by tank elements. They use two types of defense - the HASTY DEFENSE, which is most often conducted by the first-echelon units in an offensive action when their advance has been stopped, and the DELIBERATE DEFENSE which is conducted when the advance is going to be halted for more than a few hours.

**The HASTY DEFENSE is normally employed when units on the move are forced to stop in place.** Companies pull off the road, or out of column, move onto the nearest defensible terrain, and establish defensive positions. If the formation is led by tanks, they normally pull back to the second echelon. Antitank weapons move well forward to protect flanks and gaps between defensive positions.

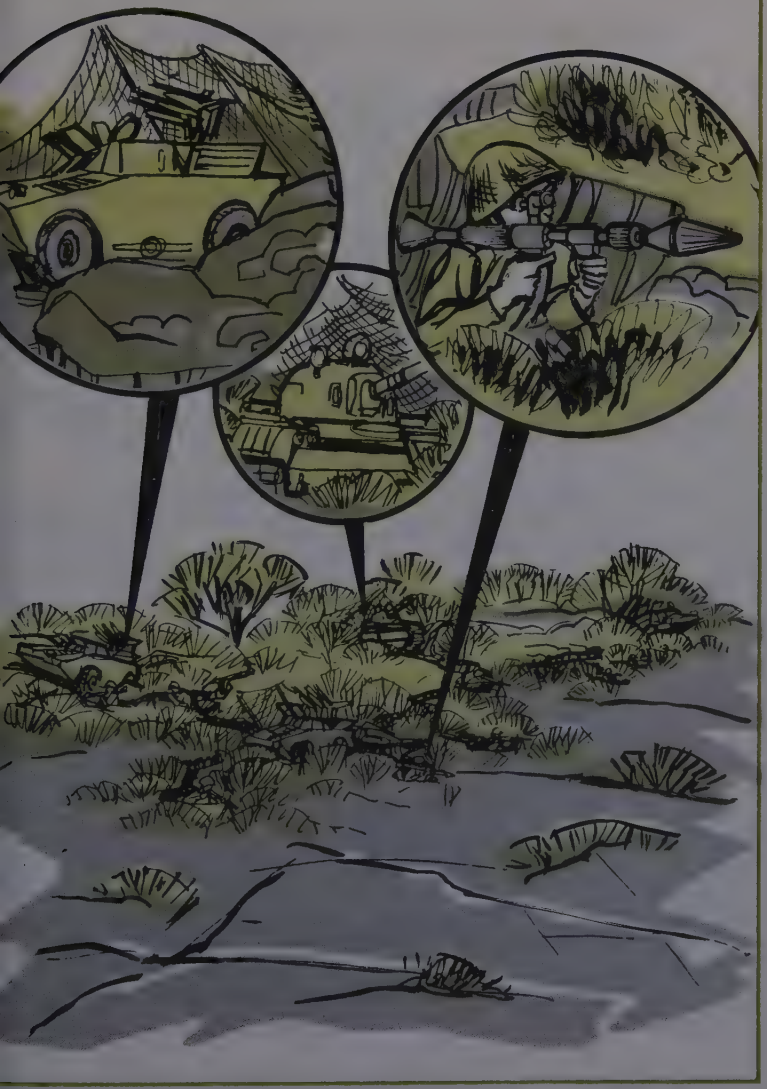
**To defend for longer periods, the enemy employs the DELIBERATE DEFENSE.**

The threat defense structure is divided into security, forward, and main defense zones. The threat forces defend from a last-stand point of view.

A forward platoon in a deliberate defense is normally organized with all three squads forward. In some instances, carriers of forward platoons will be positioned with the rear platoon, providing overwatching fire. Note the extensive trenchwork. This is what your squad will be clearing as part of an assault force. All infantry is dug in as well as time permits in two- or three-man positions. Communication trenches are dug between platoons and company headquarters.

Alternate positions are prepared. Carriers are dug in. Tanks in defense positions are dug in by unit means (dozer blades, explosives, etc.). They are manned by the turret crew (3 men). A machinegun may be set up on a ground mount 100 meters in front of the tank and manned by the driver. This position is connected to the tank by a trench. Platoon sectors are broken down into squad sectors. Threat forces use large quantities of antipersonnel and antitank mines to protect their flanks.

## DELIBERATE DEFENSE



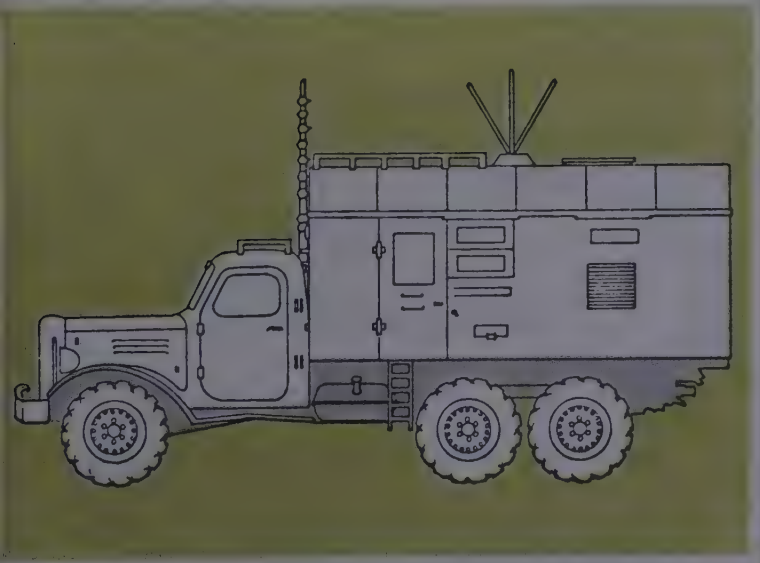
## WATER-CROSSING OPERATIONS

The threat emphasizes water-crossing capabilities. His troops are well trained in these type operations and most of their equipment is either amphibious or can cross water obstacles up to 18 feet deep using snorkeling techniques.

Threat forces also possess an extensive bridging capability.

## ELECTRONIC WARFARE

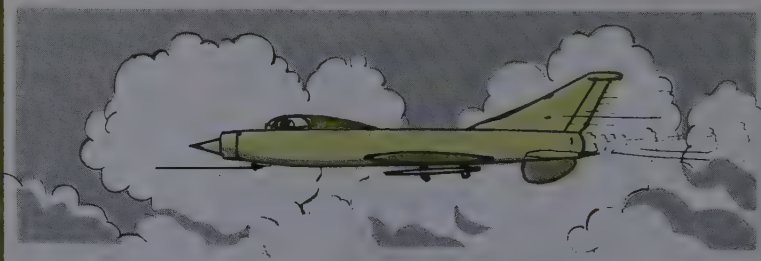
Threat forces use electronic warfare (EW). They listen to your radios and strive to use any information collected. Among other things, this information is used to target your location for artillery. Anything that emits an electrical signal is a target for threat EW teams. They also try to jam or interrupt battlefield communications. To defeat or minimize the effectiveness of this threat EW capability, USE THE RADIO ONLY WHEN NECESSARY. Using proper radio-telephone procedures and communications security techniques will also assist in minimizing this threat.



## NBC

The threat has stockpiled great quantities of NBC weapons. His troops are well-trained and equipped to use these weapons to further his advance. Most of his tactical vehicles are sealed to prevent casualties to his own troops. Your squad must be trained and fully prepared to serve and fight in this environment.

## TACTICAL AIR

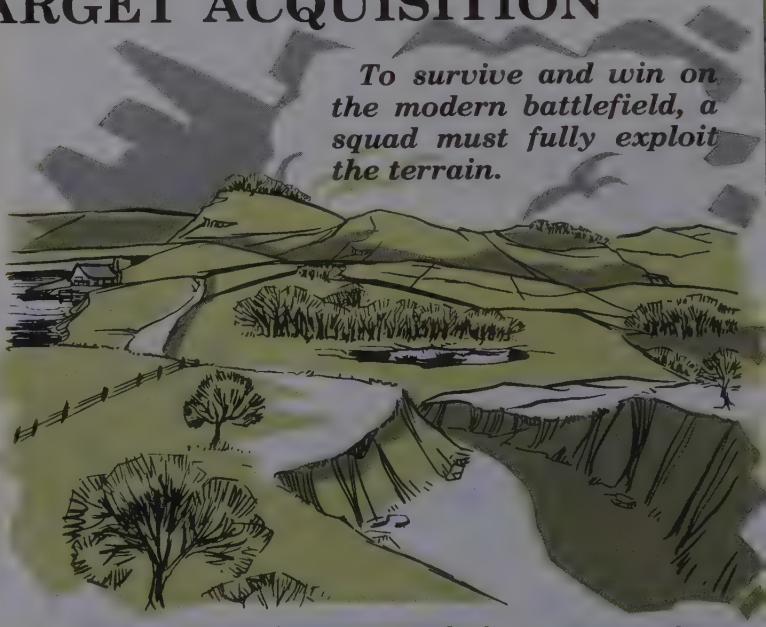


The threat uses large numbers of ground support aircraft to augment and extend artillery fires. This means that there are no "safe" areas on the battlefield.

Threat forces do not stop at night, but continue operating using night vision devices and illumination. They consider darkness an advantage which must be used. Many of their night vision devices are infrared, but numerous passive devices are rapidly being introduced. These include weapons sights, surveillance devices, driving aids on all vehicles, sniperscopes, intrusion detection devices, and metascopes. Therefore, your squad must be alert and prepared to fight the enemy under all conditions of visibility.

CHAPTER 3

# COVER, CONCEALMENT, CAMOUFLAGE, AND TARGET ACQUISITION

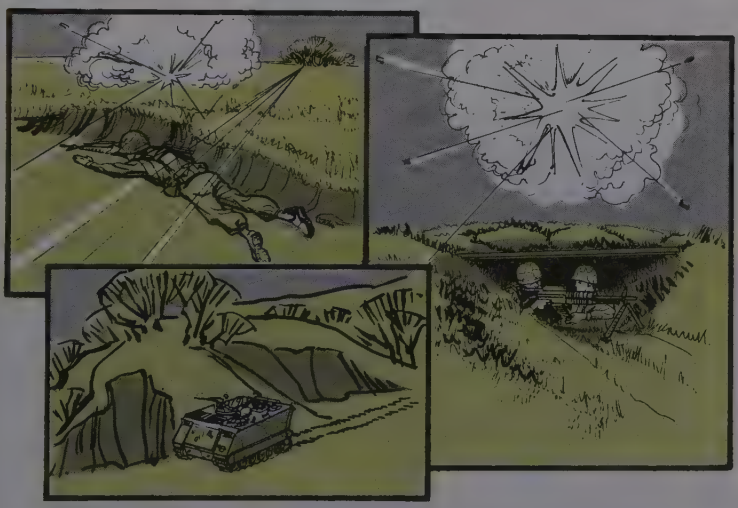


*To survive and win on the modern battlefield, a squad must fully exploit the terrain.*

Proper use of the terrain is the key to success for all tactical operations. At squad level, this means using **COVER** and **CONCEALMENT.** Squad leaders are responsible for instructing and supervising all members of their squads in how to make the best use of natural cover and concealment. To supplement natural cover and concealment found on the battlefield, they must be proficient in **CAMOUFLAGE.**

## COVER

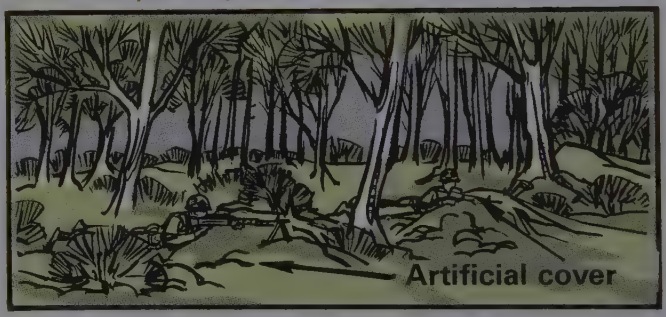
**COVER IS PROTECTION FROM THE FIRE OF ENEMY WEAPONS.** This fire includes bullets, fragments, flame, nuclear effects, and biological and chemical agents. Cover will also provide protection from enemy observation. It may be natural or artificial.



Natural cover **(ravines, hollows, reverse slopes)** and artificial cover **(fighting positions, trenches, walls)** protect you from fire. The battlefield provides cover such as rubble, abandoned equipment, and craters. Even the smallest depression or fold in the ground will give you some cover when it is most needed. A 6-inch depression may be enough cover to save your life under fire. Form a habit of looking for, and using, every bit of natural cover the terrain offers.

In the defense, when the enemy approaches your position and brings it under heavy direct and indirect fires, there must be adequate frontal cover to protect your men. NATURAL FRONTAL COVER (logs, stumps, trees, folds in the ground, etc.) is BEST because it is more difficult for the enemy to spot. Try to select positions for your men that provide good frontal protection.

The enemy can spot this . . .




. . . easier than this.

Keep in mind that no amount of frontal cover will protect you if your positions are exposed to direct fire from long-range enemy weapons. Don't put your squad in a position where the enemy can fire on you at greater ranges than you can fire on him.

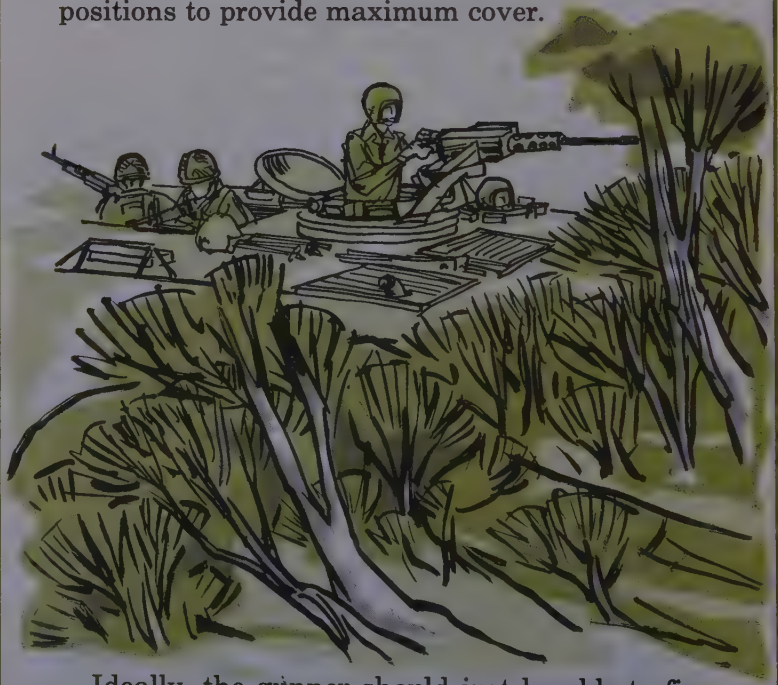
In order to provide more protection from direct and indirect fires than can be provided by natural cover, fighting positions for dismounted infantry are constructed as directed by the platoon leader and by your unit's SOP. (See appendix G.) The type and extent of preparation will vary according to the mission, the length of stay, and danger from enemy fires.

In some cases simple prone shelters are used, while in other cases more fully developed positions, up to fighting positions with overhead cover and connecting trenches, are prepared.

Because of the faster tempo and more frequent movements associated with the active defense, the mech squad will often have less time to prepare fighting positions than will light infantry. Fighting positions of some type are normally constructed on locations the platoon will occupy dismounted for longer than a brief halt.

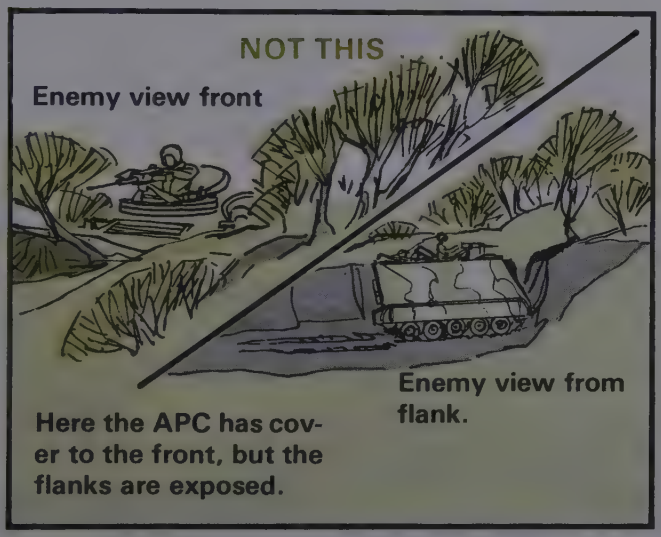
# COVER FOR THE ARMORED PERSONNEL CARRIER

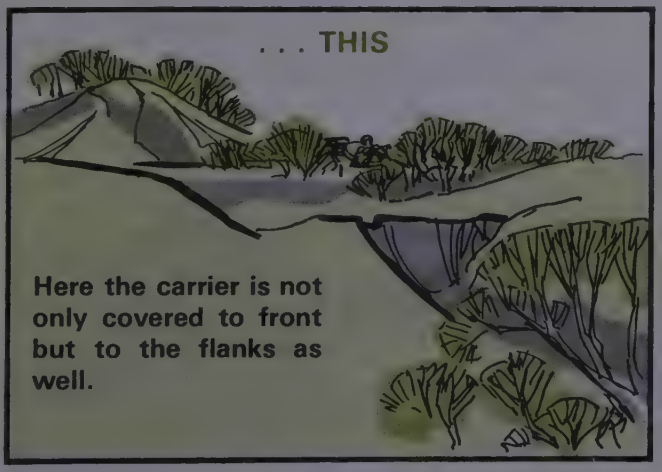
The APC provides a major portion of the firepower of the squad; but it, in turn, is vulnerable to enemy fires. APCs should occupy defilade firing positions to provide maximum cover.



Ideally, the gunner should just be able to fire with the APC completely behind cover. Moving into such a position requires teamwork on the part of the gunner and driver -- with the gunner telling the driver just how far forward to move the carrier.

Cover to the flanks must be remembered as well as cover to the front.



## COVER WHEN MOVING

When moving or attacking, your best protection from the enemy's direct fire is the terrain's natural cover. When you are moving, select a route which puts a piece of terrain between you and where you know or think the enemy is. Use every ravine, hill, wooded area, and anything else to prevent him from shooting at you.

### WHEN MOVING FOLLOW THESE SIMPLE RULES.

**DO**

**USE ALL AVAILABLE COVER**

**CROSS OPEN AREAS QUICKLY**

**DON'T**

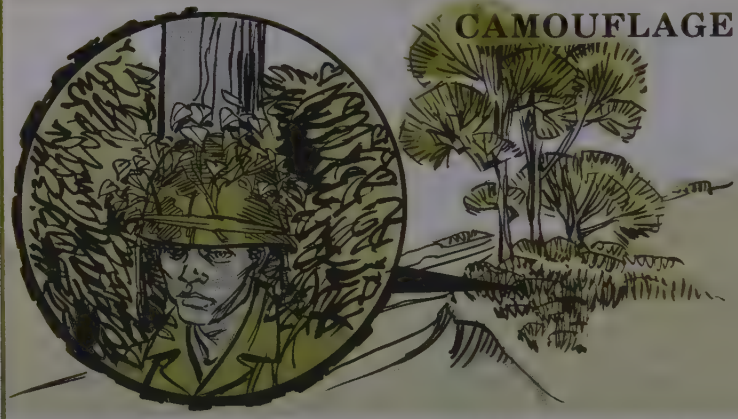
**SKYLINE**

**MOVE DIRECTLY FORWARD FROM A FIRING POSITION**

## CONCEALMENT

**CONCEALMENT IS PROTECTION FROM ENEMY OBSERVATION.** It is concealment, natural or artificial, that hides or disguises a soldier, carrier, position, equipment, or a route. Concealment includes not only camouflage but also light, noise, movement, and odor discipline. Well-concealed carriers and fighting positions will deceive the enemy as to the location of your squad. Natural concealment is provided by your surroundings. The best way to use this natural concealment is not to disturb it when you move into an area. Against an enemy who has night vision and other detection devices, darkness will no longer provide you concealment. Concealment from air is also a major consideration.

# CAMOUFLAGE



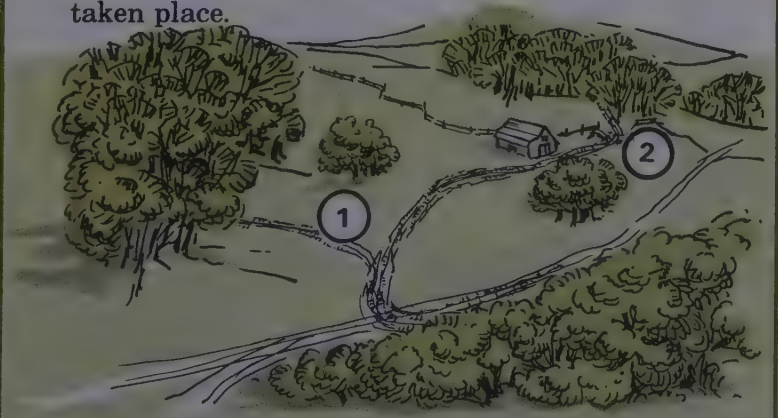
**CAMOUFLAGE IS MANMADE CONCEALMENT.** Camouflage includes taking advantage of the natural environment as well as the application of natural and artificial materials. Used properly, it will disguise your squad and minimize the possibility of detection and identification by the enemy. If camouflage material is required, plan to get it from areas other than your platoon's position. Camouflage can be made from branches, bushes, leaves, and grass. Attach this material to your APC with old commo wire. Live foliage for camouflaging is best, because dead foliage and artificial materials may not blend in well with the natural surroundings.

The enemy's greatest effort will be directed toward locating the weapons which hold up his attack. If he finds them, he will soon destroy them. Therefore, they must be not only covered, but concealed as well. Clever use of camouflage will conceal you in areas which at first appear to be open and exposed.

## CAMOUFLAGE CONSIDERATIONS

Your squad must understand how clues are given and avoid giving the enemy clues to your location. These clues are **MOVEMENT, SHADOWS, POSITION, SHINE, SHAPE, COLOR, TEXTURE, and DISPERSION.**

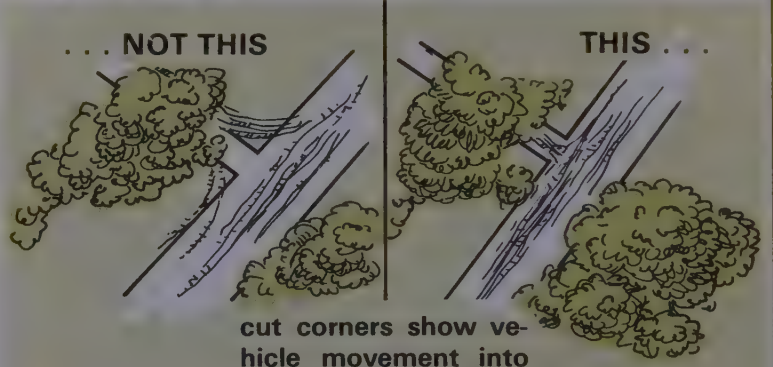
**MOVEMENT** attracts attention. An observer is likely to catch movement within his field of view. Movement, such as arm-and-hand signals, is visible to the naked eye at ranges in excess of 1,700 meters. Comparison of aerial photographs taken of the same area at different times will indicate movement of personnel, vehicles, and equipment and will aid enemy target acquisition. It is not necessary for troops to move to be observed - tracks can be seen after movement has taken place.




**It is obvious here, to even the untrained observer, that some activity is taking place at both 1 and 2 and needs watching.**

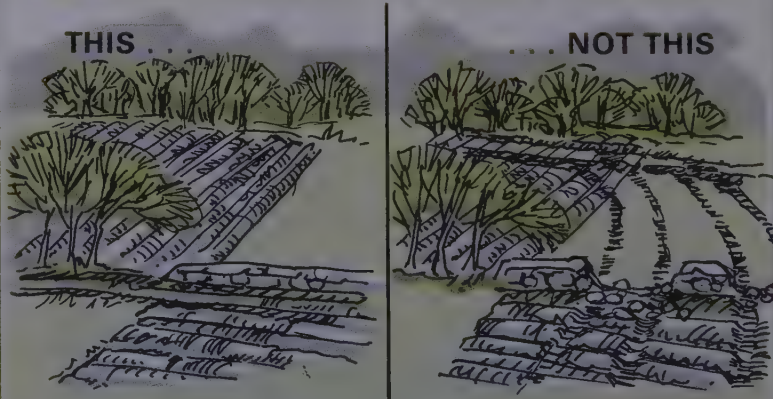
## TO HIDE TRACKS

### DON'T CUT CORNERS SHORT




cut corners show vehicle movement into woods.

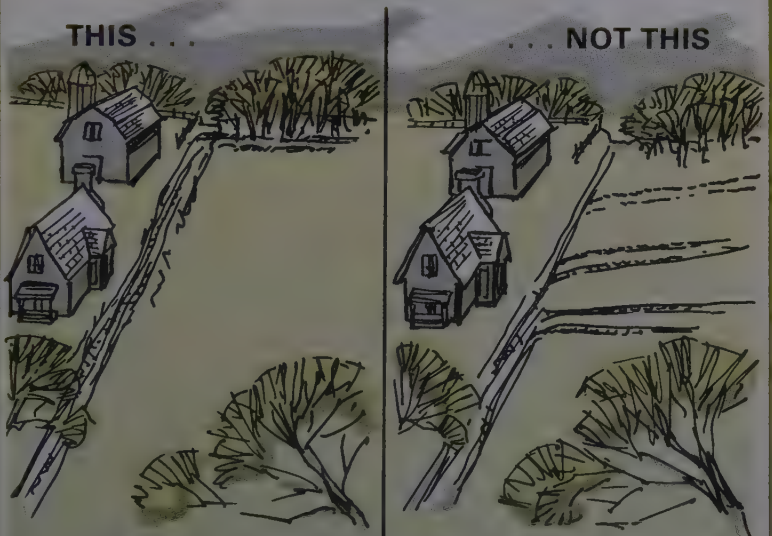
### USE TERRAIN TO HIDE TRACKS




Vehicle moves along single track using terrain to hide movement.

Vehicle track across plowed field open area.

## ● KEEP NEW TRAILS TO THE ABSOLUTE MINIMUM.



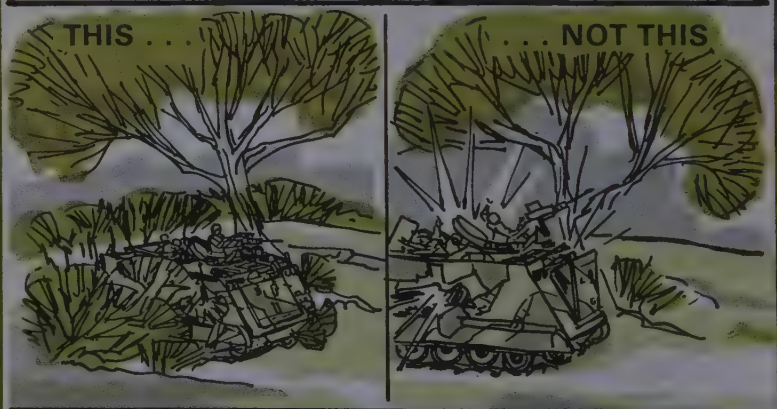

New trails must blend into the background pattern, following hedges, areas of stone or rock, gullies and stream beds, under trees, and along the edge of grassland and scrub.

New trails which cannot be fitted into the ground pattern must not stop at the position to which they lead, but be extended further to deceive the enemy.

# SHADOWS

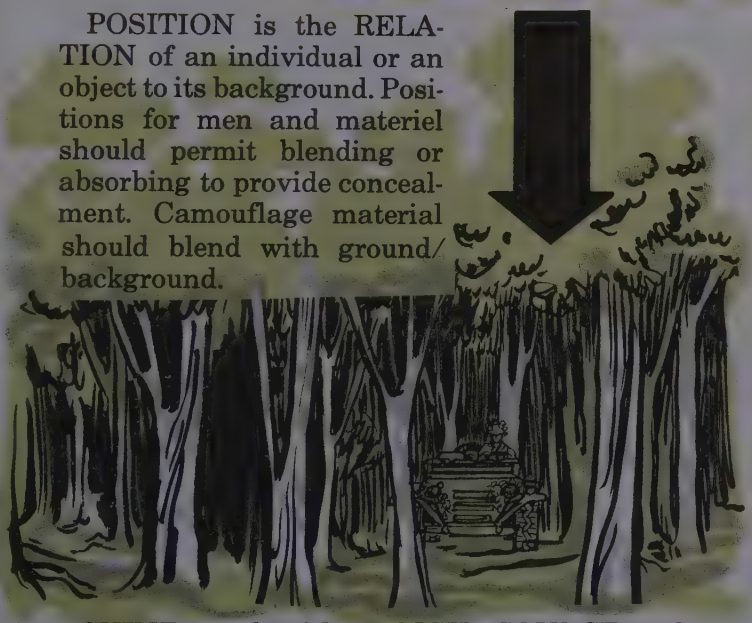
**Let them work to your advantage and not the enemy's**

SHADOW may reveal the existence and the nature of targets to air or ground observers. Avoid exposing your men to the effects of the long shadows cast by moving men in late afternoon and early morning. Do this by proper route selection. Disrupt familiar shadows (e.g., tanks, personnel carriers) with camouflage, and when practical, occupy shaded areas to take advantage of the concealment. This is particularly true in a built-up area where you can use the shadows of buildings. Think ahead. That's your best plan.

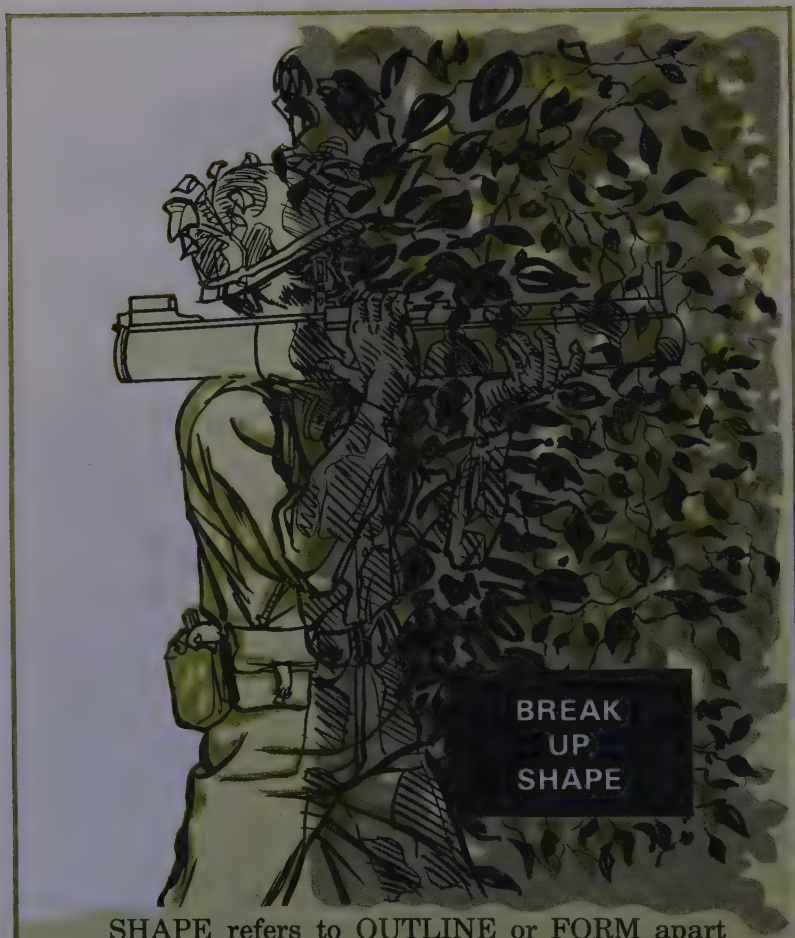



Care must be taken when using shadows for concealment. Vehicles parked in shadows must be moved as the shadows shift. If a vehicle is located under a tree, shadows and foliage normally do not give enough concealment, and the vehicle should be camouflaged with branches.

POSITION is the RELATION of an individual or an object to its background. Positions for men and materiel should permit blending or absorbing to provide concealment. Camouflage material should blend with ground/background.



SHINE may be either a LIGHT SOURCE, such as a cigarette glowing during darkness, or REFLECTED LIGHT from smooth, polished surfaces, such as shiny boots, mess equipment, a worn helmet surface, a windshield, binoculars, eyeglasses, watch crystal, or exposed skin surfaces not toned down with face paint. Avoid the use of lights or reflection of light that will aid enemy detection. Keep the shine down on your equipment. Pattern-paint vehicles to avoid shine.




SHAPE refers to OUTLINE or FORM apart from either color or surface characteristics, e.g., the shape of the steel helmet is easily recognized as is the undisguised shape of the human body; use both camouflage and concealment to cause familiar shapes TO BLEND with the surroundings.

**COLOR** aids detection where there is contrast between the color of an individual or object and its background, such as white skin against the dark green of jungle foliage.

You must rigidly control the exposure of colors that contrast with the natural background of terrain and vegetation. Do not use unnaturally bright colors not common to nature. a distinctive scarf may boost morale until men realize that it is causing casualties by serving as a detection clue and aiming point for snipers.

## ROUGH SURFACES ARE BEST

**TEXTURE** governs the degree that a surface will absorb and scatter or reflect light. Rough surfaces tend to appear dark, whereas relatively smooth surfaces may change from dark to light. A change in the direction of viewing or lighting will cause this to happen.

Smooth sides or decks of uncamouflaged armored vehicles lack texture and will reflect light. Uncamouflaged steel helmets will also reflect light. Use nets, burlap, helmet covers, flat paint, and foliage to camouflage and avoid enemy detection based on texture.

## SPREAD OUT

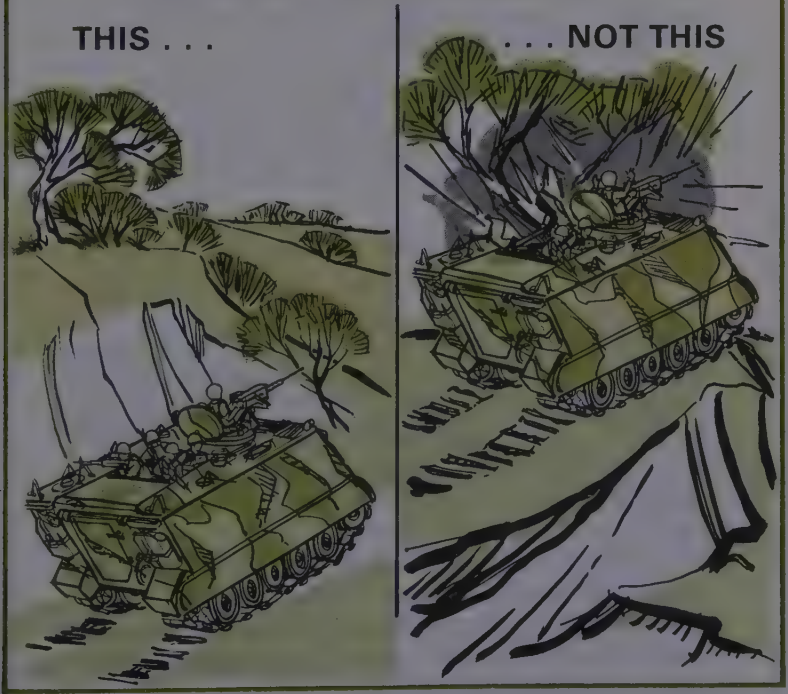
**DISPERSION** is the **DISTANCE** between men, vehicles, and equipment. If your squad is not dispersed, it is easier to detect. Remember what the enemy's weapons can do to your squad if it's detected. Prescribe distance and intervals for your squad, then enforce dispersion discipline.

Avoid obvious patterns of vehicles and men (geometric formations) that tend to attract attention.

## AVOID OBVIOUS LOCATIONS AND LANDMARKS.

No matter how well you have camouflaged your men, carriers, and equipment, it will be of little help if you put them in locations where the enemy will expect them. Suspected locations draw enemy fire.

Landmarks attract the enemy's attention, and his artillery will probably have registered on them. Avoid road junctions, hill tops, lone buildings or trees, or other obvious positions.



## HOW TO CAMOUFLAGE YOUR MEN

To discipline your squad in applying all camouflage measures, you must **SET THE EXAMPLE.** This will apply prior to moving into an area, while you are there, and after you have moved out.

To properly camouflage your men, carriers, and equipment, **STUDY THE TERRAIN** and **VEGETATION** in the area you are in, going through, and going to. Arrange grass, leaves, brush, and other natural materials you use to conform with the natural area. For example, do not expect tree branches stuck into the ground in an open field to provide camouflage. You may have to change camouflage en route as you pass through an area that differs from an earlier one.

Any spoil from fighting positions and latrines must be camouflaged or hidden under overhead cover. If necessary, it should be carried from the fighting positions and carried to the nearest cover during digging.

Any spoil used for parapets or overhead cover must be camouflaged. The bottom of the holes must also be camouflaged to prevent detection from the air. Site positions under cover or along some break in the pattern of the ground, that is, at the edge of a cultivated area or an area of low scrub or long grass. It may be difficult at times to find positions which also accomplish your mission, but some compromise is usually possible. It is impossible to completely conceal a prepared squad position which is out in the open, away from any break in the ground pattern, so these areas should be avoided.

**MAKE YOUR POSITIONS LIKE THE NATURAL SURROUNDING TERRAIN.**

Use only as little material as needed. Excess material **(natural or artificial)** can reveal your position. Get material from a wide area. Do not strip an adjacent area of all foliage as it will then attract attention.

## DOES IT LOOK NATURAL?

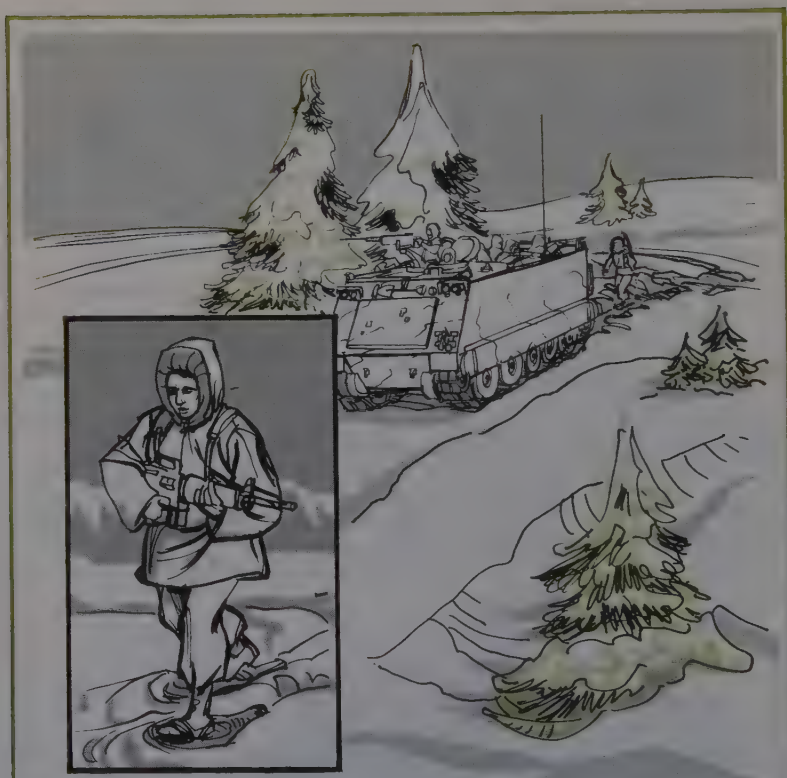
After camouflage is completed, inspect it from the enemy's viewpoint. Check often to see if it remains natural-looking and actually conceals your position. If it does not look natural, rearrange or replace it.

Positions must be progressively camouflaged as they are constructed. The concealment of spoil is a continuous process. Work should not stop at any time until all camouflage is complete. Work on a defensive position during daylight will depend on the enemy air threat and if the enemy can observe you or not. When he has air superiority, work may only be possible at night. Shiny or light objects which will attract attention from the air must not be left lying about. Mess tins, mirrors, food containers, white underwear or towels must all be hidden. Men should not be allowed to remove their shirts unless there is no air threat. Fires must not be lit where there is any possibility of the smoke or flame being seen by air observation. Tracks and other indicators of movement must be hidden.

Equipment must blend with the natural background. Remember -- vegetation CHANGES color with the season.

Alter the distinctive silhouette of your helmet with the issue helmet cover or one made of cloth or burlap colored to blend with the terrain. Make sure it fits loosely – not tight. A tight camouflage cover looks neat but is easy to see. Let foliage stick over the edges of the outline – but do not use too much. If material for helmet covers is not available, disguise and dull the surface of your helmet with irregular patterns of paint or mud. Use a camouflage band, string, burlap strips, or rubber bands to hold the foliage in place.

Your uniform must blend in with the surrounding terrain. Faded equipment is hard to hide. Turn in faded equipment or use mud, camouflage stick paint, or other expedients to color it until it can be exchanged.

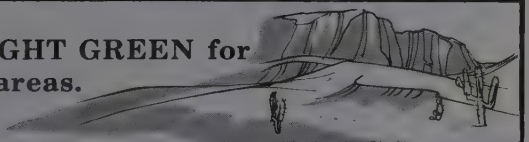


Wear a snowsuit and color your equipment white when operating against a background of unbroken, snow-covered terrain. (Except for the snowsuit, there is no issue camouflage suit for unusual conditions.) If a snowsuit is not available, you can make one from a sheet, mattress cover, or other white cloth. You can make a suit to blend with other terrain by dyeing an old set of fatigues or by attaching bow ties of colored burlap garlands to an old set of fatigues. Combat uniforms can be stained and dyed, with a little imagination.

Exposed skin reflects light and attracts the enemy's attention. Even very dark skin will reflect light because of its natural oil. Camouflage face paint sticks are issued in three standard two-tone sticks as follows:

**LOAM AND LIGHT GREEN for vegetated regions.**

**SAND AND LIGHT GREEN for desert and dry areas.**

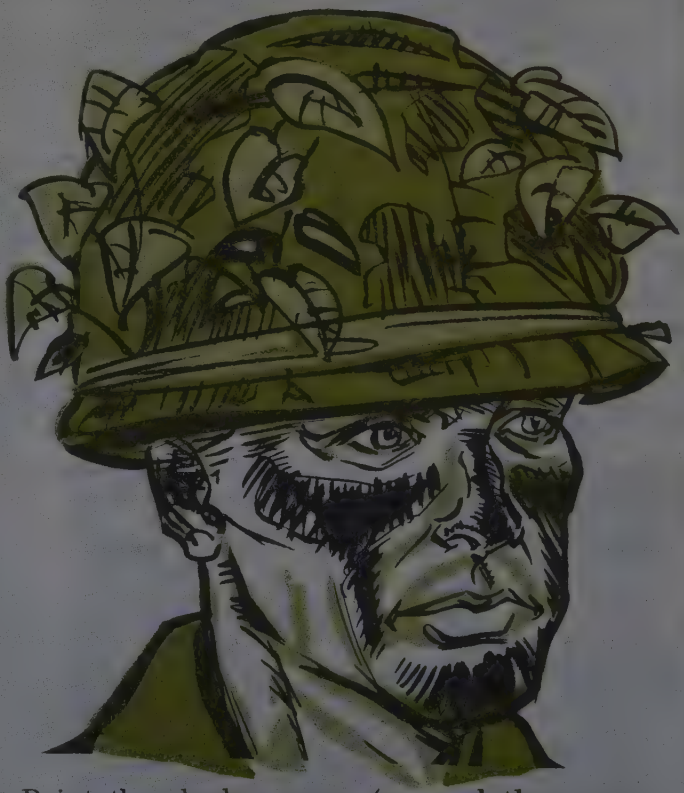


**LOAM AND WHITE for snow-covered terrain.**

Use burnt cork, charcoal, or lampblack to tone down exposed areas of the skin when issue-type face paint sticks are not available. You may use mud. Remember, mud dries and may peel off, leaving the skin exposed. It may also contain harmful bacteria.

When applying camouflage, have your soldiers use the buddy system -- work with another man and check each other. Then you must check everyone in your squad.

Paint the shine areas (**forehead, cheekbones, nose, ears, and chin**) with a dark color.

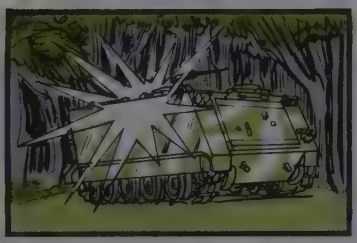


Paint the shadow areas (**around the eyes, under the nose, and under the chin**) with a light color. Paint the exposed skin on the back of your neck, ears, arms, and hands. When it is available, use the issue-type face paint camouflage stick to apply a two-color combination in an irregular pattern.

## CAMOUFLAGING THE CARRIER

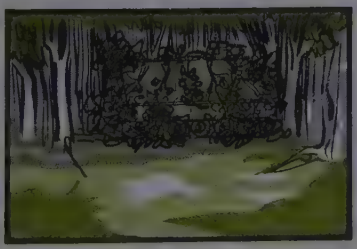
All APCs require PATTERN PAINTING for combat operations. Pattern painting reduces the enemy's ability to see your vehicle while it is moving or stationary. Patterns are changed according to the season and location to best hide the carrier. However, you MUST NOT RELY on pattern painting alone. The addition of natural materials tends to break up the shape of the APC (straight lines are always a dead giveaway) and to provide some concealment while moving.

**NOT THIS . . .**



**Outline can be spotted . . .**

**. . . THIS**



**. . . but here it can't.**

Attaching natural materials breaks up the shape of the APC and provides some concealment while moving.

Use natural materials such as grass and tree branches and use rope, chicken wire, twine nets, fencing, or wire to tie down these camouflage materials.

Tiedown material should be crisscrossed by being attached to brush guards and tiedown loops on top of the APC and to the shroud bolts on the bottom. Then branches can be inserted into the wire.

**Remember:**

- Tiedown material and camouflage material should not interfere with maintenance or caliber .50 machinegun operation. Personnel in the cargo hatch must be able to observe and fire.
- Vehicle camouflage must be replaced or changed as necessary.

Warm vehicle engines give off heat that can be detected with infrared photographs. This heat signature can be reduced by parking vehicles under dense live foliage or close to buildings.

Ideally, vehicles should be hidden in or among buildings where there is a more favorable infrared background.

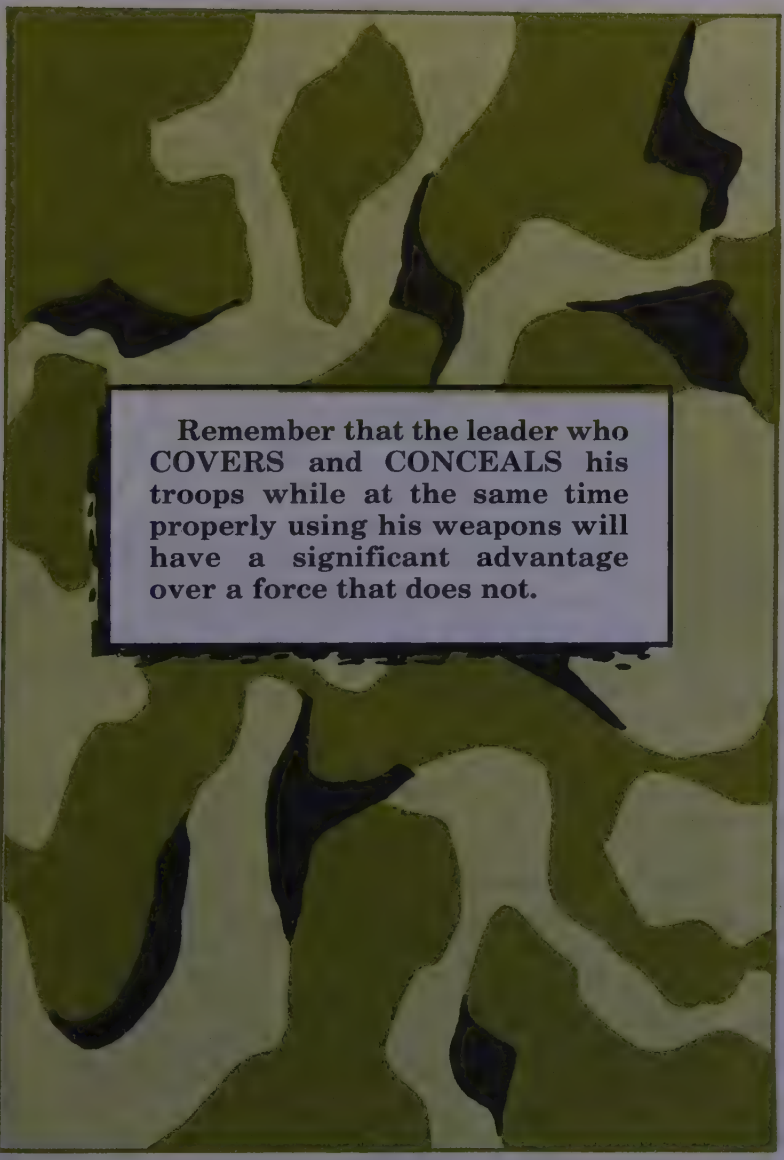
When little concealment is available on a firing position, the carrier may be kept in a HIDE POSITION. This means the carrier is kept in a completely concealed location. An observer is positioned forward to keep the squad's sector under observation and the APC is moved forward to fire. This technique is particularly useful in hiding the carrier from enemy aircraft.

## SEEING THE ENEMY

Just like you, the enemy will try to hide his positions and movements. When looking for the enemy, use your binoculars. Look for the same things you try to camouflage when you are hiding your own positions. Specifically look for:

- **Straight lines (they do not occur naturally).**
- **Tracks or other evidence of activity.**
- **Broken foliage or foliage that doesn't match.**
- **Movement.**
- **Glare or shine.**
- **Smoke, flash, or dust.**

**Also check out closely areas where it seems likely the enemy will try to hide.**


Remember that the leader who COVERS and CONCEALS his troops while at the same time properly using his weapons will have a significant advantage over a force that does not.

CHAPTER 4

# ORGANIZATION and MOVEMENT for MECHANIZED INFANTRY

## Section I. ORGANIZATION

A mechanized infantry squad at full strength has 11 men, an armored personnel carrier, its organic weapons and equipment, plus attachments made by the platoon leader. Although the squad leader organizes the squad differently for different situations, he always keeps at least a driver and a team leader/caliber .50 machinegun gunner, who is a fire team leader, with the carrier. The organization of the remainder of the squad is based primarily upon how the squad must fight and the weapons it must use on and off the carrier.

## UNDERSTRENGTH SQUADS

The squad will not always be at full strength. Even though it may be short of personnel, the squad can still accomplish its mission by fully exploiting the capabilities of its weapons and equipment and organizing for combat based on these rules:

**KEEP KEY LEADERSHIP POSITIONS FILLED.**

- An internal chain of command must be maintained.

**MAN THE MOST POTENT WEAPONS FIRST.**

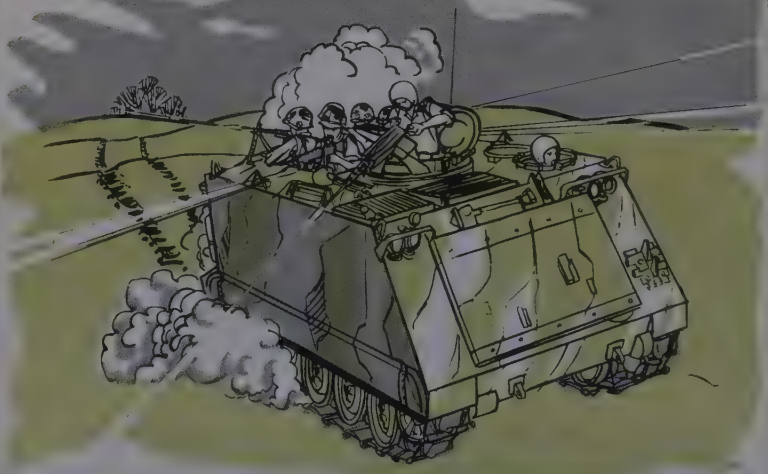
- Full advantage must be taken of available firepower, so always man your machineguns, grenade launchers, and attached platoon weapons.

**KEEP A CREW (AT LEAST A DRIVER AND TEAM LEADER/GUNNER) FOR THE APC AT ALL TIMES.**

## FIGHTING MOUNTED

On the modern battlefield, the squad can expect to spend a great deal of its time moving. As it moves, it must constantly be prepared to fight from the carrier. It must also be able to fight

mounted during offensive and defensive operations. In order to do these things, the squad operates as one element when it is mounted. The caliber .50 machinegun is manned by a carrier team leader and other weapons of the squad are employed from the open cargo hatch. The squad leader positions himself in the cargo hatch where he can best control both the fires of the weapons and the movement of the APC.



The remaining members of the squad are seated in the troop compartment, each man with a specific task. For example, one man passes ammunition up for the .50 caliber, one for the M60 machinegun, another passes up M16 magazines, or 40-mm grenades. Additionally, a backup is designated for each weapon firing from the cargo hatch and for the .50 caliber. The squad must be trained to put the Dragon into operation if it must be fired from the APC (see TC 23-24-1).

## FIGHTING DISMOUNTED

Mechanized infantry squads may have to dismount to hold ground, to provide security, to breach antiarmor defenses, or to cross terrain that is impassable for the carrier.

When the squads dismount, the platoon leader decides how the carriers are to be employed. He may decide to use them under platoon control, as a separate element apart from the squads, or he may let them remain under squad control.

In both cases, the squads organize into two teams -- a maneuver team led by the squad leader and a carrier team controlled by a team leader/caliber .50 machinegun gunner, who is normally the senior team leader of the squad.

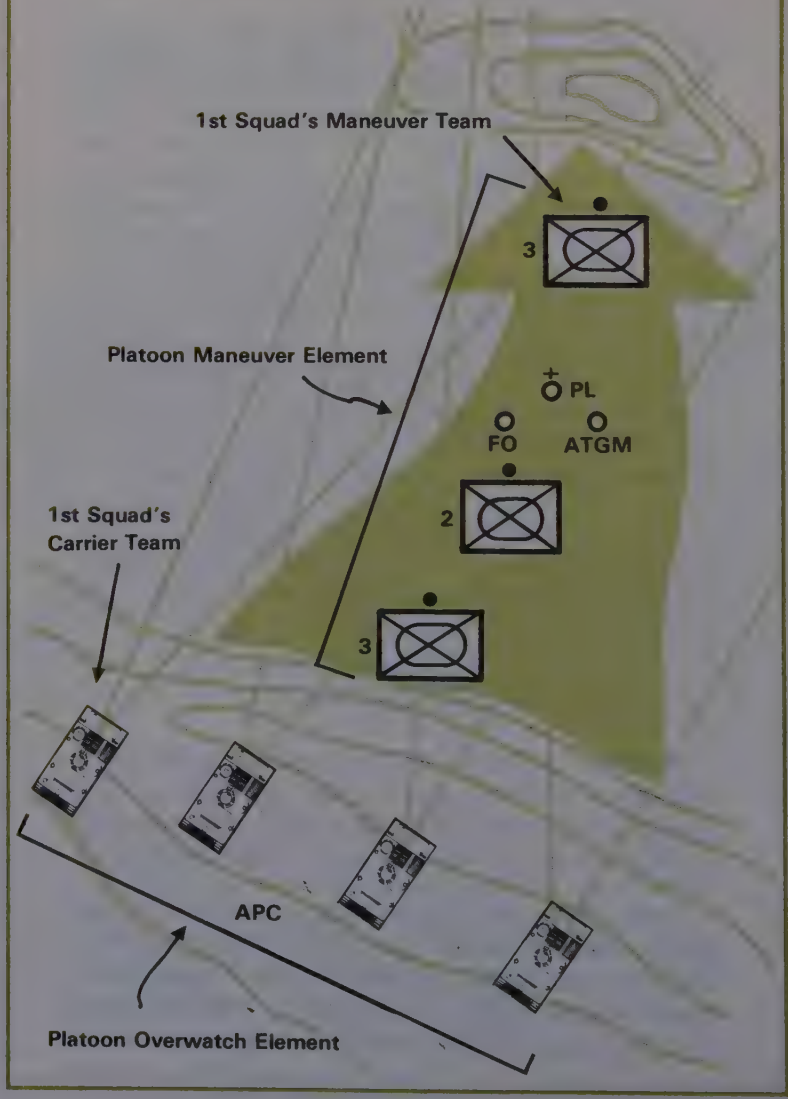
When the APCs are to be employed under platoon control, the platoon leader will specify what weapons will go with the carrier team.

### DISMOUNT SOPs

In many units the platoon leader will establish a dismount SOP for the squads. The purpose of a dismount SOP is to enable the squads to react very rapidly when the order to dismount is received.

Based upon his knowledge of the MISSION, ENEMY, TERRAIN, and TROOPS assigned to his platoon, he may modify the SOP to tell each squad which weapons stay with the carrier teams and which go with the maneuver teams.

# HOW THE TEAMS WORK IN THE PLATOON



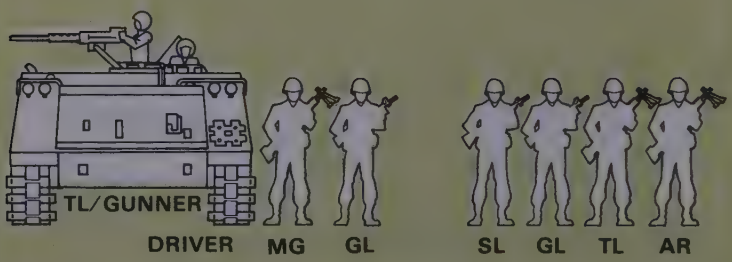
Within the platoon, the squad carrier teams form the overwatch element. This element can be controlled by the platoon sergeant or assistant platoon sergeant, depending on the criticality of the mission. The maneuver teams normally move under the control of the platoon leader.

If the APCs remain under squad control, the composition of the carrier team and maneuver team is based upon the mission, the number of men assigned to the squad, the type of enemy (light, motorized, armor), and whether or not the carrier team can position itself so that it can support the maneuver team.

The MANEUVER TEAM consists of the dismounted squad members. In many cases, the maneuver team will operate as one element. However, if the number of men in the team is six or more, the maneuver team can organize into two elements. The squad leader controls one of these elements and the remaining team leader controls the other.

When the carrier remains under squad control and the carrier team can support the maneuver team, the squad leader has several options for organizing and arming his teams. Normally, the platoon leader will decide if the Dragons will accompany the maneuver teams. The squad's machinegun and grenadiers may be employed with either team, depending upon the situation.

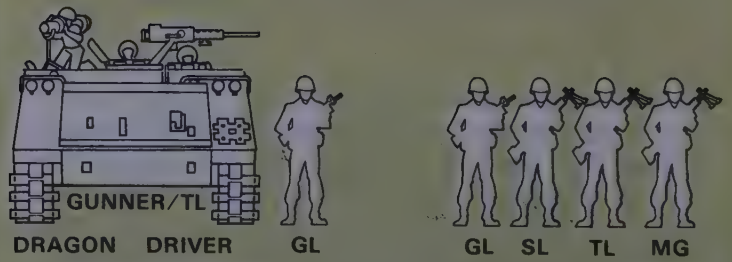
An understrength, eight-man mechanized infantry squad might be organized like this:




CARRIER TEAM

MANEUVER TEAM

Or like this:




CARRIER TEAM

MANEUVER TEAM

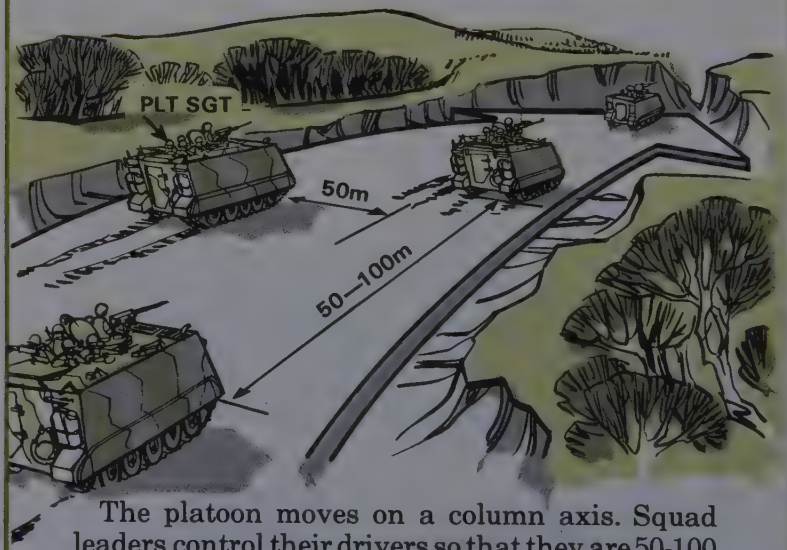
## Section II
# MOVEMENT

Mechanized infantry squads normally move mounted as part of the platoon. Because the ability to move rapidly on the battlefield is one of the keys to success, the platoon moves mounted until it is forced to dismount. It adjusts its technique of movement to the likelihood of making contact with the enemy.

| LIKELIHOOD OF CONTACT | TECHNIQUE OF MOVEMENT |
|---|---|
| NOT LIKELY | TRAVELING |
| POSSIBLE | TRAVELING OVERWATCH |
| EXPECTED | BOUNDING OVERWATCH |

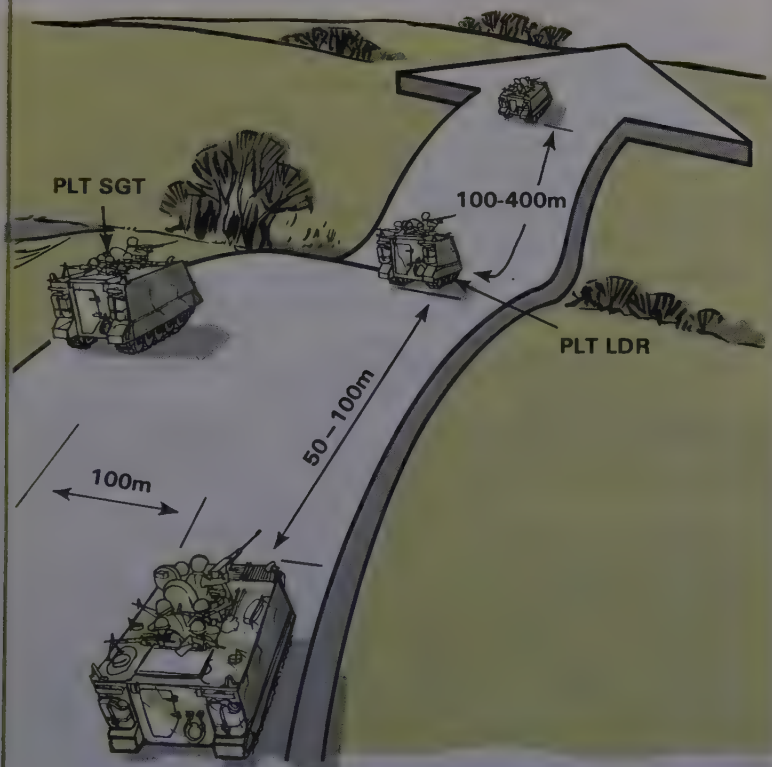
These techniques of movement are not fixed formations. Distances between APCs vary based upon the terrain and visibility. As the terrain becomes more rugged, the vegetation becomes dense, or if visibility is reduced, the distance between APCs is reduced. Squad leaders maintain visual contact with the APC to their front. One man in the cargo hatch maintains visual contact with the APC behind them. The platoon should be able to move most of the time using arm-and-hand signals for control.

## TRAVELING




The platoon moves on a column axis. Squad leaders control their drivers so that they are 50-100 meters from the APC to their front. They try to stay about 50 meters to the right or left (depending on where they are in the column).

## TRAVELING OVERWATCH

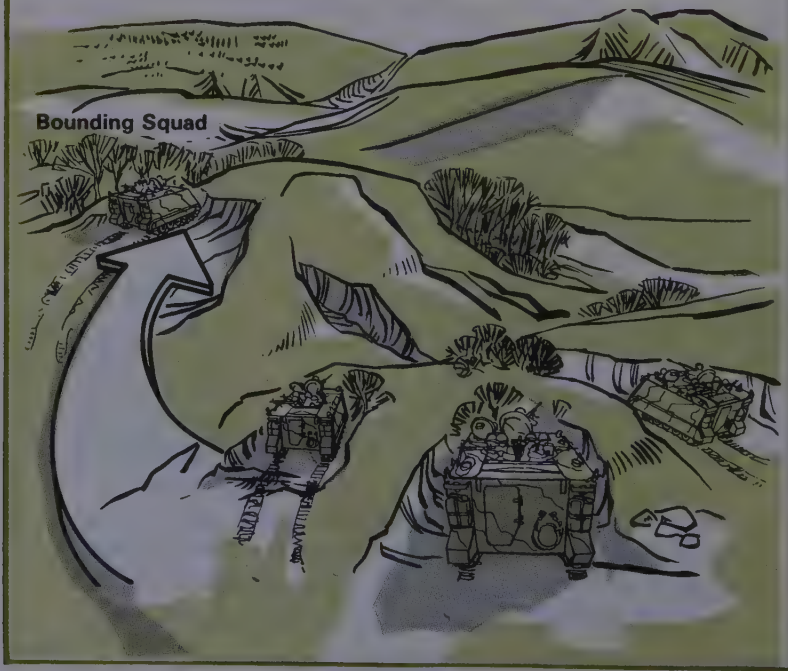



As they did with the traveling technique, the platoon in traveling overwatch moves on a column axis. Although the entire platoon is moving, the lead squad is far enough forward so that the platoon makes contact only with that squad. When the lead squad makes contact, the rest of the platoon is free to support them by fire and/or maneuver.

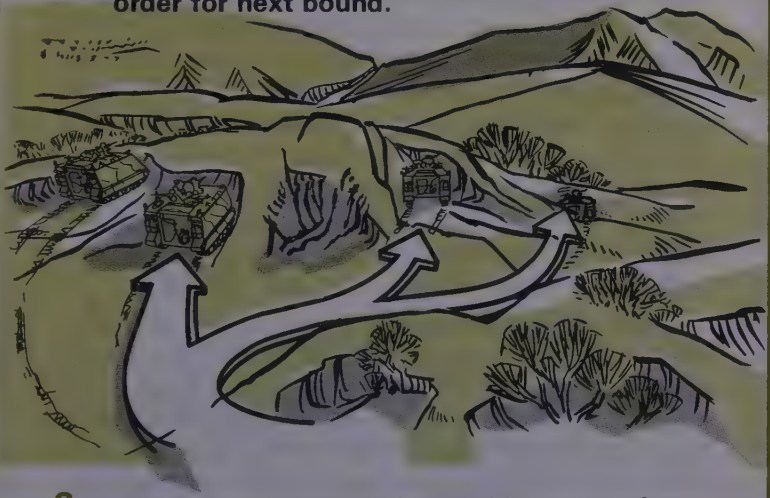
## BOUNDING OVERWATCH

When the platoon uses bounding overwatch, one squad moves forward while the rest of the platoon overwatches from a stationary position. The bounding squad moves to a new position and secures it so that the platoon can continue to move. When it reaches the new position, the bounding squad dismounts only enough men and weapons to secure the area. As soon as the bounding squad secures the position, the remainder of the platoon moves forward and the process is repeated.

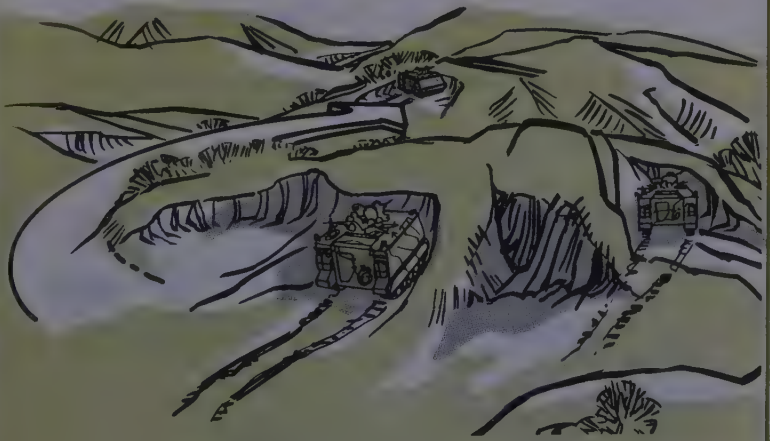
**1 One squad bounds, platoon (-) overwatches.**



**2** Bounding squad secures next position, platoon (-) moves forward, platoon leader issues order for next bound.



**3** One squad bounds, platoon (-) overwatches.



## HOW THE SQUAD OVERWATCHES

When the platoon is bounding or when the platoon is acting as the overwatch for another element, the squad will be given a sector to observe and, if necessary, cover by fire. This sector is specified by the platoon leader who may also tell the squad when and what to dismount. The sector may be identified as a specific area, or the platoon may have an SOP (such as the clock system) to identify squad responsibility. Target Reference Points (TRPs) may also be used to designate sectors of fire and control the fires of the overwatching squads.

Since mechanized infantry habitually operates with tanks, the bounding element will most often be a tank platoon. When overwatching tanks, the squad must observe to the rear of the tanks as well as to the front because tankers cannot see behind them. The overwatching squad must protect the tanks from enemy soldiers that try to attack the tanks from the rear. Also look for enemy ATGMs fired at the flank or rear of the tanks. If you see one, immediately send a warning over the platoon radio net and fire at the base of the smoke trail that the missile leaves.

## TERRAIN DRIVING

Terrain driving reduces the squad's exposure while moving. Although the squad's moves are normally based upon instructions from the platoon leader, the squad leader controls the driver of his APC. As the squad moves, it should follow these rules:

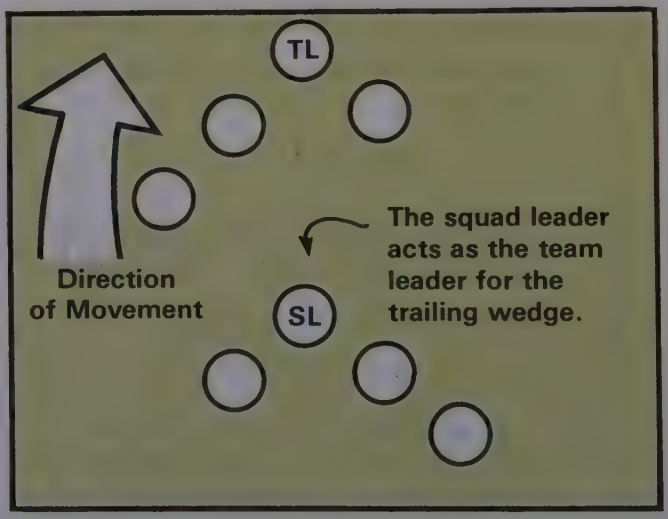
- **Use all available cover and concealment.**
- **Avoid skylining.**
- **Don't move directly forward from a defilade firing position.**
- **Cross open areas quickly.**

Equally as important as how to move, is how to stop. Anytime the APC halts it should be covered and concealed. Ideally, it stops in a concealed hull down position, but this is not always possible. As a minimum, try to stop under a tree or bush that conceals the carrier from aircraft and breaks up the outline. During temporary halts the platoon leader decides whether or not the squad dismounts.

## DISMOUNTED MOVEMENT

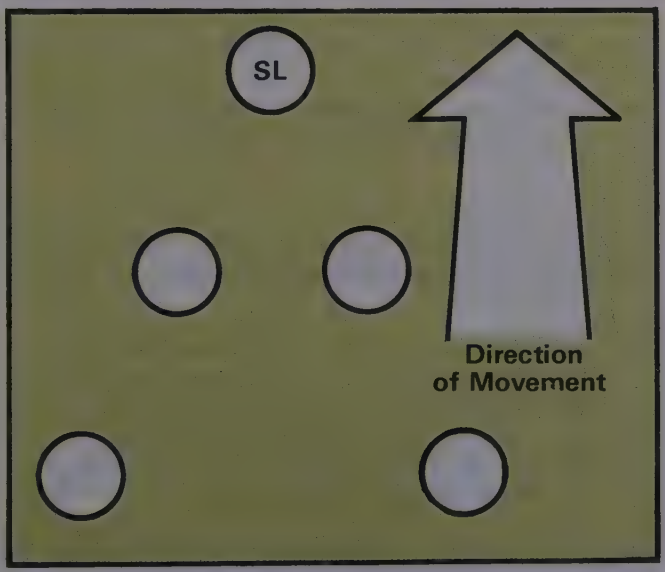
When the squad dismounts, it operates with a carrier team and a maneuver team.

If the maneuver team is large enough (6-9 men) it will organize into two elements and move similar to light infantry (see chap 5).




When the maneuver team has five men or less, either because the squad is understrength or because additional men were left with the carrier team to man weapons, the maneuver team will move as one element in a wedge. When moving as one element the maneuver team does not use movement techniques internally. It participates as part of the platoon in traveling, traveling overwatch, or bounding overwatch.

Each man in the maneuver team is given a specific area to observe as the team moves. All-round security must be maintained, so make sure the last man on each flank of the wedge knows he has to look behind him.




## LIMITED VISIBILITY MOVEMENT

The squad moves under conditions of limited visibility using the fundamentals discussed in this chapter. However, because visibility is reduced, control of movement becomes more difficult. See Chapter 9, Section II for methods of control in fog, dust, smoke, darkness or other conditions when it is hard to see.

## COUNTERING ATGMs

As they move around the battlefield, mechanized infantry squads have mobility, fast reaction, and armor protection because they are mounted in armored personnel carriers. At the same time, they are faced with a deadly threat -- the ANTITANK GUIDED MISSILE (ATGM). Of all the weapons that the mechanized infantry squad will face on the modern battlefield, ATGMs stand out as one of the most dangerous.

There are several types of threat ATGMs. All have the following strengths in common:

- LONG-RANGE ACCURACY
- HIGH DEGREES OF KILLING POWER (LETHALITY)
- EASE OF MOVEMENT
- HIGH RELIABILITY
- REMOTE FIRING CAPABILITY

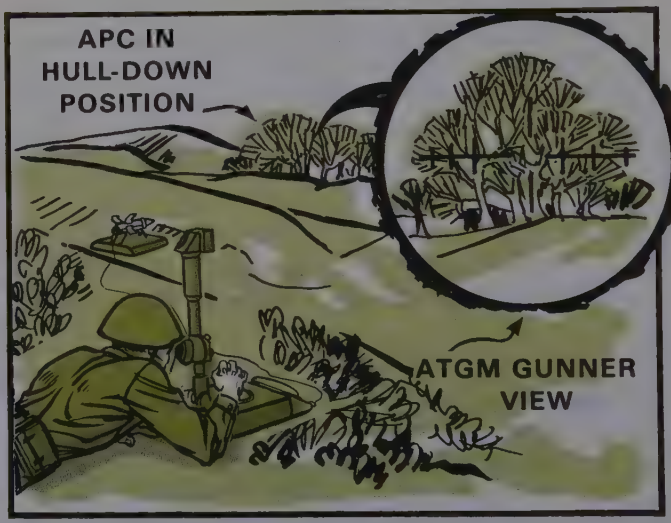
But there is no "ultimate" weapon, and ATGMs also have inherent weaknesses:

- **GUNNERS MUST BE HIGHLY TRAINED**
- **MINIMUM RANGE LIMITATIONS**
- **SLOW MISSILE SPEED**
- **REQUIREMENT FOR GOOD VISUAL CONTACT WITH BOTH MISSILE AND TARGET**
- **LACK OF RESPONSIVENESS IN TRACKING ERRATICALLY MOVING TARGETS**
- **SAGGERs LEAVE A SMOKE TRAIL**

Note that the operator is the biggest weakness of the ATGM. If you can kill or suppress the operator, the ATGM won't hit you.

Considering these strengths and weaknesses, here are some techniques to aid in defeating ATGMs.

## COVER, CONCEALMENT AND CAMOUFLAGE




The best protection against ATGMs is the proper use of the cover afforded by terrain --**IF HE CAN'T HIT YOU, HE CAN'T KILL YOU.** This applies to APCs as well as to soldiers. Even when cover is sparse, maximum use must be made of any scrub vegetation, depressions, or terrain features that partially obscure the APC. Since ATGMs must be flown to the target, any obstruction may detonate or deflect the missile. Concealment and camouflage will provide protection. If the gunner cannot see a target, he cannot acquire it.

# REACT

Every soldier in the squad must be on the watch for ATGMs. In the event a missile is detected, an immediate warning must be given. Individual fires and cal .50 fires should be directed at the point or area from which the missile was fired. The idea is to shake up the ATGM gunner sufficiently to cause him to lose control of the missile. At the same time, the squad leader must give instructions to the APC driver to take evasive action.

# SUPPRESS

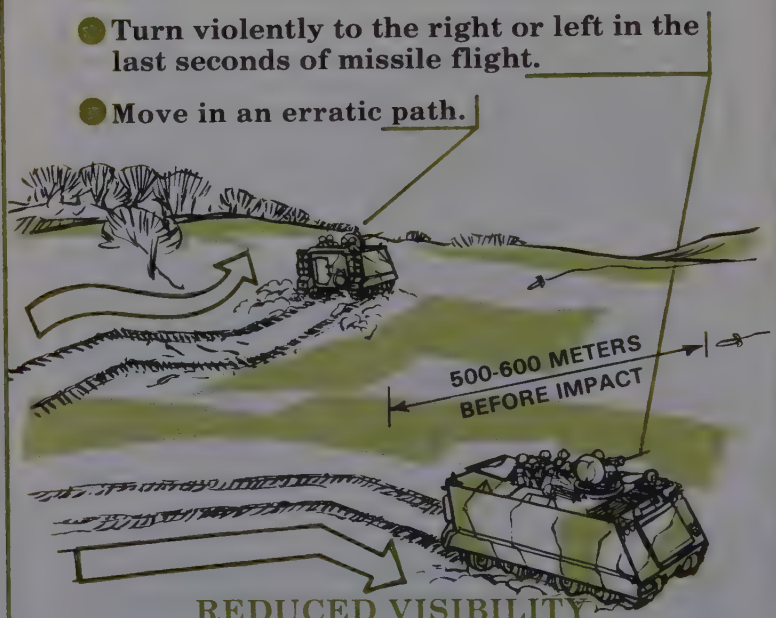
Use suppressive fires on known or suspected enemy ATGM positions. It isn't necessary to kill the gunner or destroy the launcher to counter the ATGM.

The organic fires of the squad may not be fully effective in suppressing ATGMs, and smoke may be used as a means of degrading ATGM effectiveness. The squad should train to use smoke in the conduct of tactical operations.

# DODGE

Evasive action, or dodge is executed as follows:

- **Move immediately to natural cover.**
- **Turn violently to the right or left in the last seconds of missile flight.**
- **Move in an erratic path.**




## REDUCED VISIBILITY

The enemy's night vision devices lift the cover of darkness and some of the protection it once offered. However, known ATGMs are limited during the hours of darkness. Fog, especially at night, effectively degrades enemy ATGMs even at close range. Dust, sand, and snow storms will limit the enemy's ability to observe and track both the missile and its target.

## USE COMMON SENSE

Movement, whether mounted or dismounted, requires every member of the squad to be thinking all the time. Remember that the enemy is trying to kill you. You will stay alive and defeat him if you are able to move around the battlefield without him seeing you first. This means that when you move, you must think about what you are doing.

Keep the terrain driving rules in mind, they are nothing more than common sense. Keep your distance from the other APCs. A group of carriers moving closely together is easy for the enemy to see and to destroy. This also applies when moving dismounted.

If you must cross an open area, first check it out before you emerge from cover. If enemy locations are identified or suspected, call the platoon leader and ask him for suppression or smoke prior to crossing.

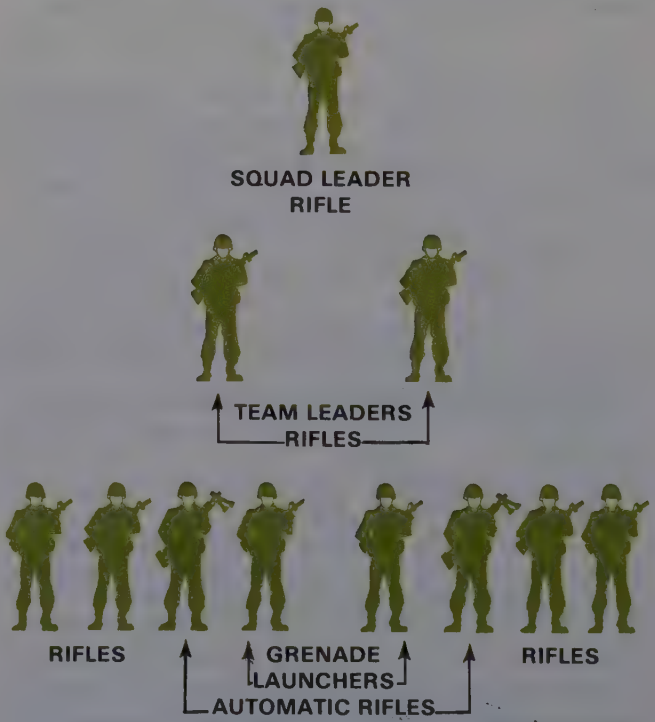
Dust trails can be seen from great distances. When you move, avoid dusty areas if possible. Ride on the shoulders of dirt roads.

Don't forget about enemy aircraft. You must always consider whether you can be seen from above. When mounted, one man in the cargo hatch must be designated as an air guard and constantly be watching for enemy aircraft.

CHAPTER 5

# ORGANIZATION and MOVEMENT for LIGHT INFANTRY

## Section I. ORGANIZATION




At full strength, the LIGHT INFANTRY squad has 11 men. It is led by a squad leader and contains two fire teams. Each fire team has the

capability to MANEUVER or to OVERWATCH. These separate roles may be maintained or may alternate between the two teams.

## UNDERSTRENGTH SQUADS

Due to casualties and other losses, a squad will often be understrength. For it to fight well, two teams should be maintained. A squad which is understrength can still do its job by fully exploiting the capabilities of its weapons and equipment and by task organizing by these rules:

**Keep key positions filled.**

**Maintain a chain of command.**

**Man key weapons (automatic rifles and grenade launchers).**

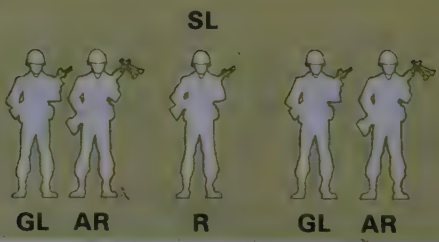
**Maintain two fire teams. When strength drops to five or less, organize as one team led by the squad leader.**

The illustration below shows how a light infantry squad leader may organize his squad as its strength drops.

**FULL STRENGTH**

**7 MAN**

**5 MAN**




When moving as one element, the squad does not use movement techniques internally. It participates as part of the platoon in traveling, traveling overwatch, or bounding overwatch.

## ORGANIZATION FOR COMBAT

You organize your squad (men and equipment) so as to best implement the platoon plan. That is, for the most part, simply TELLING EACH MAN WHAT TO DO AND WITH WHAT WEAPONS. Once you decide which man or weapon to assign to each task, you must give clear orders.

The light infantry squad leader organizes his fire teams for combat based upon the platoon leader's plan and his squad's **MISSION, STRENGTH,** and **EQUIPMENT.** Weapons are positioned within the fire team, not based on a geometric formation, but to accomplish an assigned mission.

The two fire teams are the basis of this organization for combat, but soldiers may be shifted from one team to another to perform specific tasks. These tasks may be to fire weapons, emplace demolitions, or clear buildings and bunkers. Squads may be organized as breach, assault, or support elements for an attack. They may also have to conduct patrols, antiarmor ambushes, or act as a security element. These type missions normally require the squad leader to assign special tasks to either individuals or fire teams.

## Section II
# MOVEMENT

**Infantry combat has two requirements**

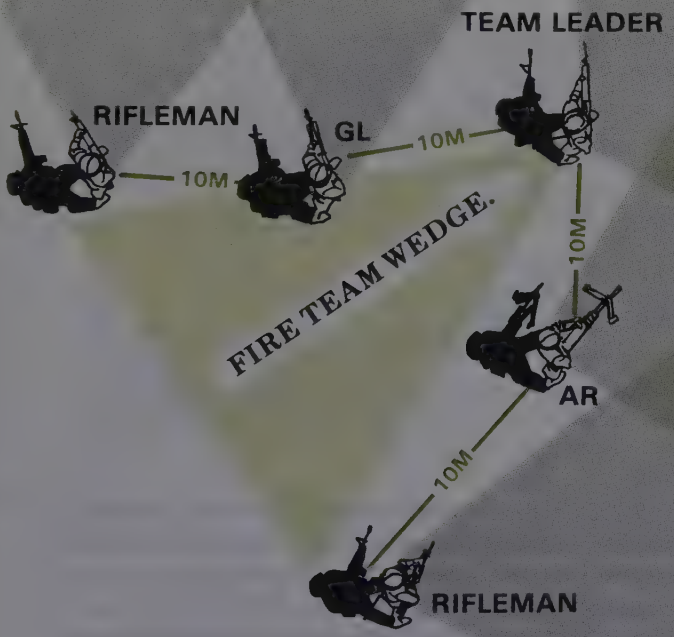
## TO MOVE AND TO FIGHT.

Your squad will spend far more time moving than actually fighting. This fact alone makes it important to use the best movement techniques, but an even more important reason for proper movement is that a carelessly moving unit usually contacts the enemy at a time and place of the enemy's choosing.

***To offset this advantage of the enemy, the squad must use movement techniques which cause contact to be made with no more than a fire team, with the remainder of the squad in the best position to fight.***

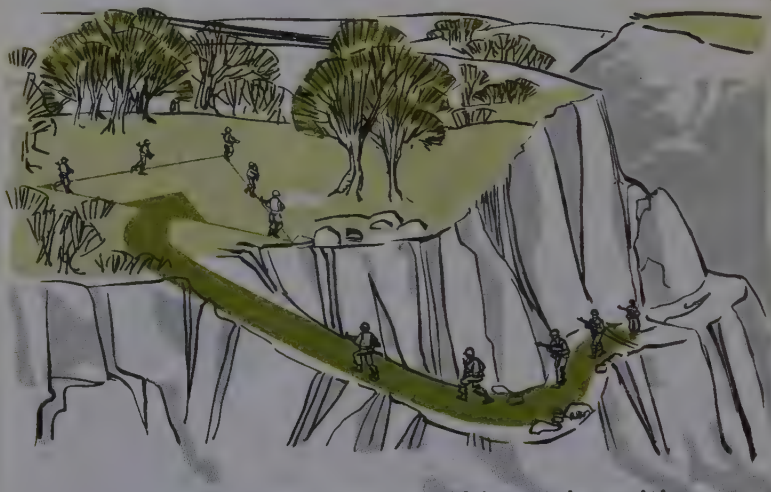
## THE FIRE TEAM

The one formation for movement used by the fire team is the **WEDGE.**




In formation, the fire team leader is in the lead position with his men echeloned to the right and left behind him, each with an assigned sector of observation to gain all-round security. The normal interval between men is about 10 meters. The position for all but the leader may vary. This simple formation lets the fire team leader lead by example.

The team leader may give specific orders to his men if he has time. However, without orders, when the fire team leader moves to the right, his men also move to the right; when he fires, his men also fire.



He can, for example, adjust his men's positions in an overwatch, or move them singly in an assault. But if he doesn't have time, they will follow him and do as he does. Terrain may dictate temporary modification of the wedge formation. As shown above, the sides of the wedge will have to close together into a single file when moving along a narrow mountain path. This may also occur when moving through a minefield or through heavy undergrowth. These variations of the wedge are not normal methods of movement, and when conditions again permit, the wedge formation is resumed automatically and without command.

The infantry squad must adjust its movement technique to the likelihood of contact with the enemy. Squad movement techniques, paired with the likelihood of contact, are:

| LIKELIHOOD OF CONTACT | TECHNIQUE OF MOVEMENT |
|---|---|
| Not likely | Traveling |
| Possible | Traveling overwatch |
| Expected | Bounding overwatch |

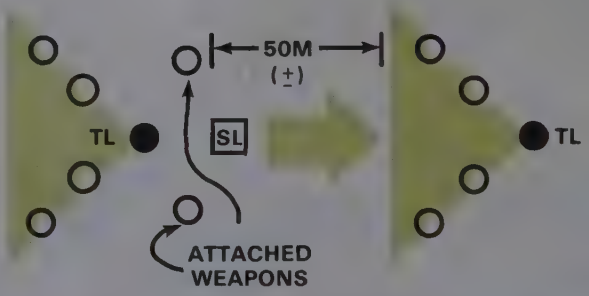
These techniques are not fixed formations. Distances between fire teams may vary based on the terrain or visibility. As the terrain becomes more rugged, the vegetation becomes dense, or if the visibility is reduced, the distance between fire teams is reduced. Visual contact **must** be maintained between fire teams.

**The squad moves with ONE FIRE TEAM FOLLOWING THE OTHER. BOTH TEAMS use the WEDGE formation for ALL MOVEMENT.**

The squad leader changes the relationship between the two teams based on the situation or on order of the platoon leader. Movement techniques differ only in the distance between fire teams and in their readiness to support one another by fire. For any movement technique, the squad leader goes where he can best control the squad. He controls his squad through his fire team leaders and, when the squad is depleted by combat losses, he may serve as the leader of one of the fire teams.

Use the **TRAVELING** technique when speed is necessary and contact with the enemy is **NOT LIKELY. ONE FIRE TEAM FOLLOWS THE OTHER,** keeping about 20 meters apart depending on the terrain. When traveling, the best location for the squad leader normally is with the lead team to aid navigation, movement, and control.

Use the **TRAVELING OVERWATCH** technique when chance of enemy contact is **POSSIBLE**, but not expected. Caution is justified but speed is desirable. The trailing team drops behind the lead team about 50 meters and is prepared to support the lead fire team. If the lead team receives fire, the trailing team is far enough to the rear so it will not be hit by the same enemy fire yet close enough to fire and/or maneuver in support of the lead team.

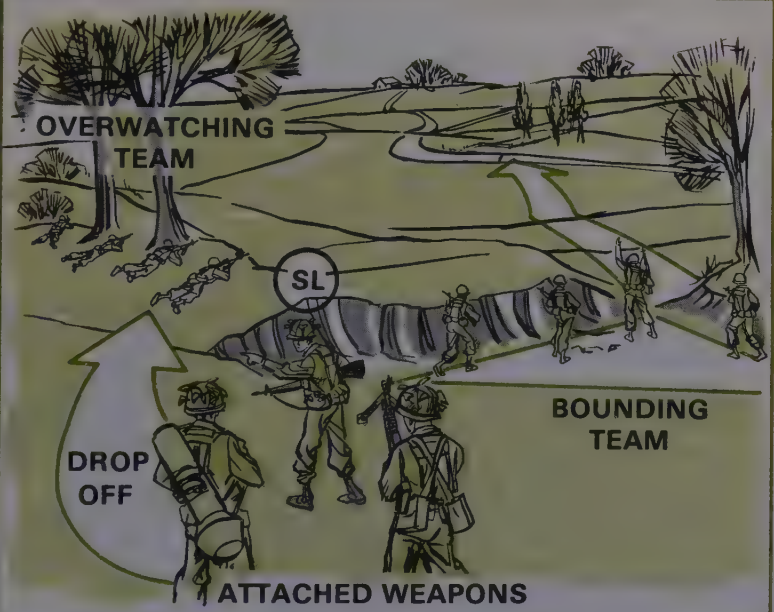



When using traveling overwatch, the leader goes where he can best control his squad in the event of contact. Normally, this is with the trailing team, keeping any attached weapons near himself and under his direct control. This follows the rule of using the least number of men to find the enemy and enhances his ability to support the lead team by fire and to influence the situation. As an exception to his normal location with the trail team, the squad leader may temporarily accompany the lead team when conditions so dictate, such as when limited visibility precludes good control of the squad from the trail team's position.

Use the **BOUNDING OVERWATCH** technique when contact is **EXPECTED**. One fire team advances while the other team is in a good position ready to fire. The key to this movement technique is the proper use of terrain. All men in the squad must exploit all cover and concealment. The chance of exposure to enemy observation must be avoided. A bound is normally not more than 100 to 150 meters forward of the overwatch team. It must be closely tied to -- **TERRAIN, THE RANGE OF THE OVERWATCH FIRE TEAM'S WEAPONS, and THE ABILITY OF THE SQUAD LEADER TO CONTROL** all elements of his squad.

The squad leader must insure that the bounding team leader knows **(at least)** where his team is to move and by which route, what to do when he gets there, the location of the squad leader and the overwatch team, and how he will get his next instructions. The overwatch team leader must know **(at least)** the route and destination of the bounding team. Each man in the overwatch team must select positions which afford him cover, concealment, observation, and a good field of fire.

Observation to the flanks of the overwatch position may be critical. Individual positions must be adjusted to insure observation of all locations that pose a possible threat.




During movement by bounding overwatch, the squad leader must be where he can best control his squad. He may change his location from one fire team to another. He normally will join the overwatching fire team as the bounding team passes it. In so doing, he normally takes any attached weapons with him. When with a bounding team, the squad leader moves in a position which will not mask its fire, interfere with its movement, or cause its men to shift position as he joins or leaves the team. He normally locates himself to the rear and on a flank which facilitates his drop-off to the fire team being passed. The squad leader must issue clear, concise orders. **(For orders, see appendix C.)**

**ANY MOVEMENT SHOULD MAKE MAXIMUM USE OF AVAILABLE COVER AND CONCEALMENT; HOWEVER, WHEN YOU HAVE TO MOVE IN THE OPEN, OBSERVE THE FOLLOWING:**

**When practical, open fields should be skirted. Move in staggered file along hedgerows rather than in the open. In wet or frosty conditions, a few men moving across a field leave a plainly visible track which will reveal where they have gone.**

**If you have to move across open ground, move in an irregular pattern - well dispersed.**

**In areas of soft sand in the desert or on beaches, move along outcrops of harder sand, or rock, or in the water's edge on beaches.**

## MOVING WITH TANKS

### INFANTRY AND TANKS MOVE TOGETHER

Light infantry and tanks will often move together. The infantry rides on the tanks until contact is expected or until contact is made. Riding on tanks provides speed but results in increased exposure of the infantry and reduces the reaction capability of the tanks.

# SAFETY

There are some very basic safety rules that should be followed when operating with tanks:

# DANGER

- **Do not move in front or abreast of the turret of a tank when it is firing *(muzzle blast of a tank's main gun extends 20 meters to either flank).***
- **Mount and dismount only when the tank is stopped.**
- **When possible, mount and dismount in view of the driver and clear of the coaxial machinegun.**
- **Tanks have a short turning radius. Stay clear of moving or turning tanks.**
- **When riding on a tank, hold on securely to grab bars, the bustle rack, etc., watch out for the turret as it may turn.**
- **Do not sleep under or near a tank.**
- **Always use ground guides at night or when moving tanks through troop areas.**

# THE OFFENSE

## Section I. GENERAL

During OFFENSIVE operations, the squad operates as part of the platoon. It --

- **MOVES AND FINDS THE ENEMY.**
- **TAKES ACTION ON CONTACT TO MINIMIZE ITS VULNERABILITY AND TO PLACE FIRE ON THE ENEMY.**
- **CLOSES WITH AND DESTROYS THE ENEMY OR SUPPORTS FORCES THAT DO.**
- **CONSOLIDATES AND REORGANIZES.**

**OR**

- **CONTINUES THE ATTACK.**

In this chapter, mechanized and light infantry are addressed separately so that the mechanized squad leader can fully understand the role of his armored personnel carrier in offensive operations. However, there are many similarities between mechanized and light infantry, especially during dismounted combat. For this reason, the mechanized squad leader must read and understand the section on light infantry operations.

- The ways the squad **moves and finds the enemy** were described in the last two chapters. Sections II and III of this chapter will discuss the squad's **actions on contact,** how the squad takes part in **closing with and destroying the enemy,** and the squad's actions during **consolidation and reorganization.**

- The fourth section of the chapter will show the special techniques and tactics associated with **fighting in restricted terrain.**

- The final section provides an example of a **squad attack order.**

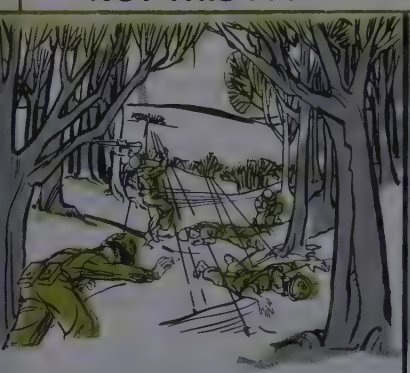
## Section II
# LIGHT INFANTRY OFFENSIVE OPERATIONS

## ACTIONS ON CONTACT

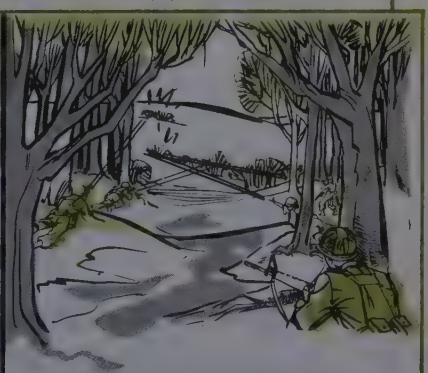
### Leading Squad

The lead squad's immediate reaction on receiving enemy fire is to deploy and place fire on the enemy. If the movement techniques have been properly used, only the lead fire team will be engaged. That fire team will take cover and return enemy fire. The trailing or overwatch fire team will maneuver forward or to the flanks to a position where it can support the lead team by bringing the enemy under fire. It avoids moving where it will be caught in the same killing zone as the leading fire team.

**NOT THIS . . .** **. . . THIS**



Trailing fire team rushes to leading team and is caught by enemy fire.



Trailing fire team deploys to covered position to return enemy fire.

The squad leader immediately reports the extent of contact to the platoon leader. The squad leader reports --

- **The number and type of enemy weapons and personnel involved.**
- **What the enemy is doing.**
- **Where they are.**
- **Friendly casualties (if any).**

An example report could be, "I have taken fire from one enemy machinegun and at least four riflemen. They are located on the edge of the woodline 200 meters north."

If the squad has surprised the enemy force and the enemy has not spotted and probably will not spot the squad, the squad will deploy and report but take no action to alert the enemy. However, if it is obvious that unless the squad starts the fight immediately the enemy will react first or get away, the squad will take the enemy under fire. Immediate reaction is the key to winning a surprise engagement -- the side that fires first will usually win.

## Overwatching/Trailing Squads

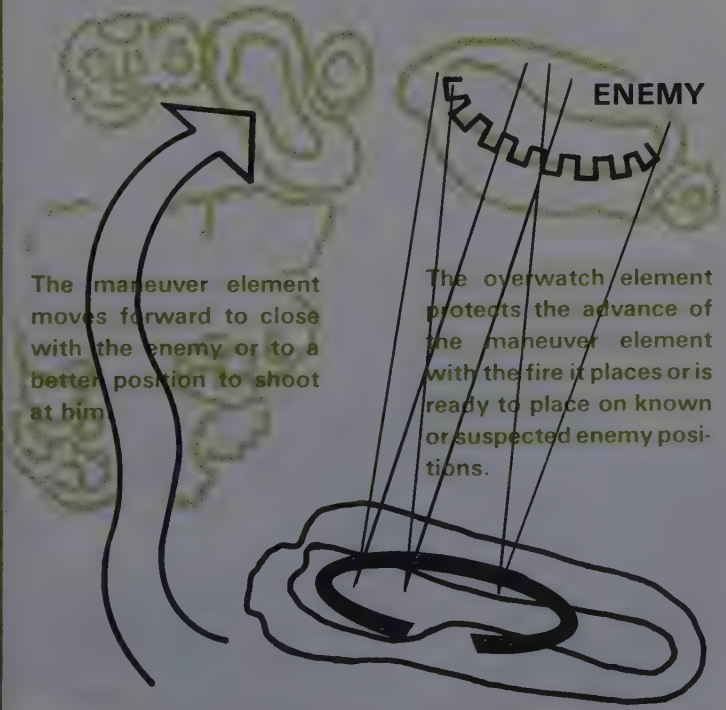
Unless otherwise directed by the platoon leader, the squad following the lead squad will immediately deploy as necessary and return enemy fire to support the lead squad.

Further actions against the enemy will be directed by the platoon leader.

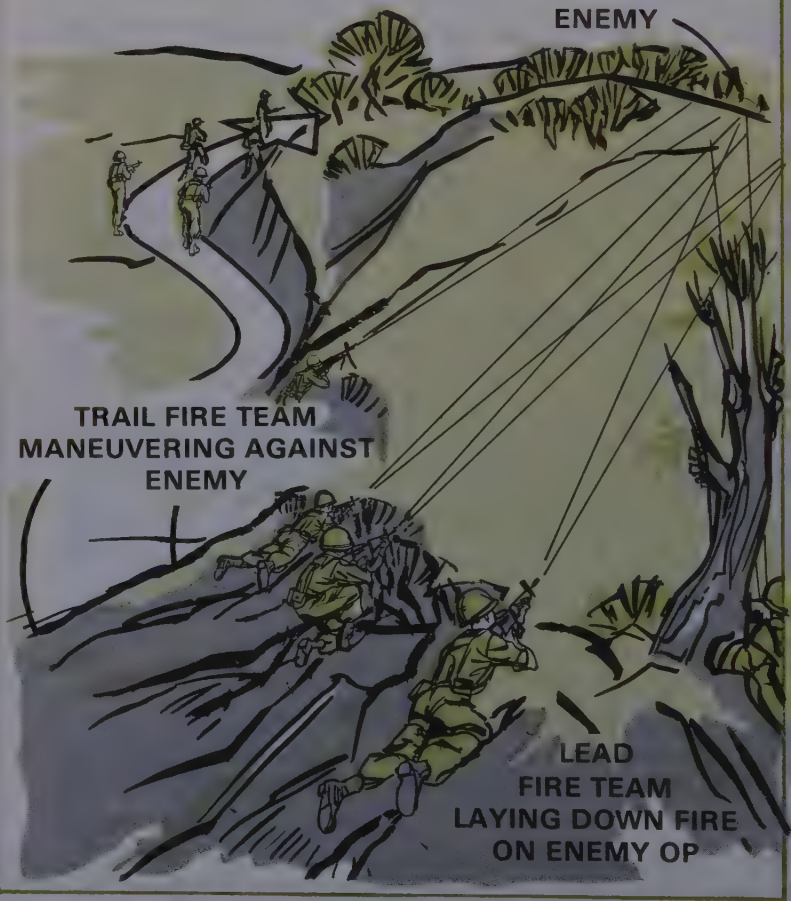
## CLOSING WITH AND DESTROYING THE ENEMY

### General

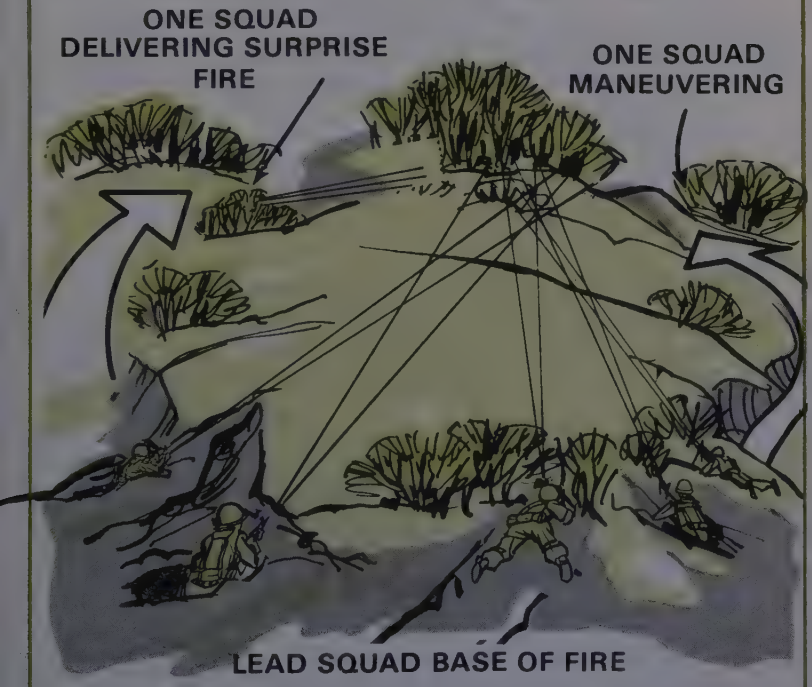
Once contact has been established, fire and maneuver is the basic tactic used to FIND out about the enemy and to CLOSE WITH and DESTROY him.


ENEMY
The maneuver element moves forward to close with the enemy or to a better position to shoot at him.
The overwatch element protects the advance of the maneuver element with the fire it places or is ready to place on known or suspected enemy positions.

If a very small enemy force **(OP/LP, a single MG, etc.)** has been located, the lead squad may be ordered to destroy it. In this case the squad leader normally uses the lead fire team as an overwatch element and maneuvers the trailing or overwatching fire team against the enemy.



However, the squad normally participates in fire and maneuver as a part of a larger force -- the platoon or company, with the lead squad or platoon deploying to support the maneuver of the rest of the platoon or company. The squad will have either an overwatch or maneuver mission.




Fire superiority must be maintained.

The lead squad deploys on contact and acts as an overwatch element supporting the maneuver of the rest of the platoon.

## Overwatch Element

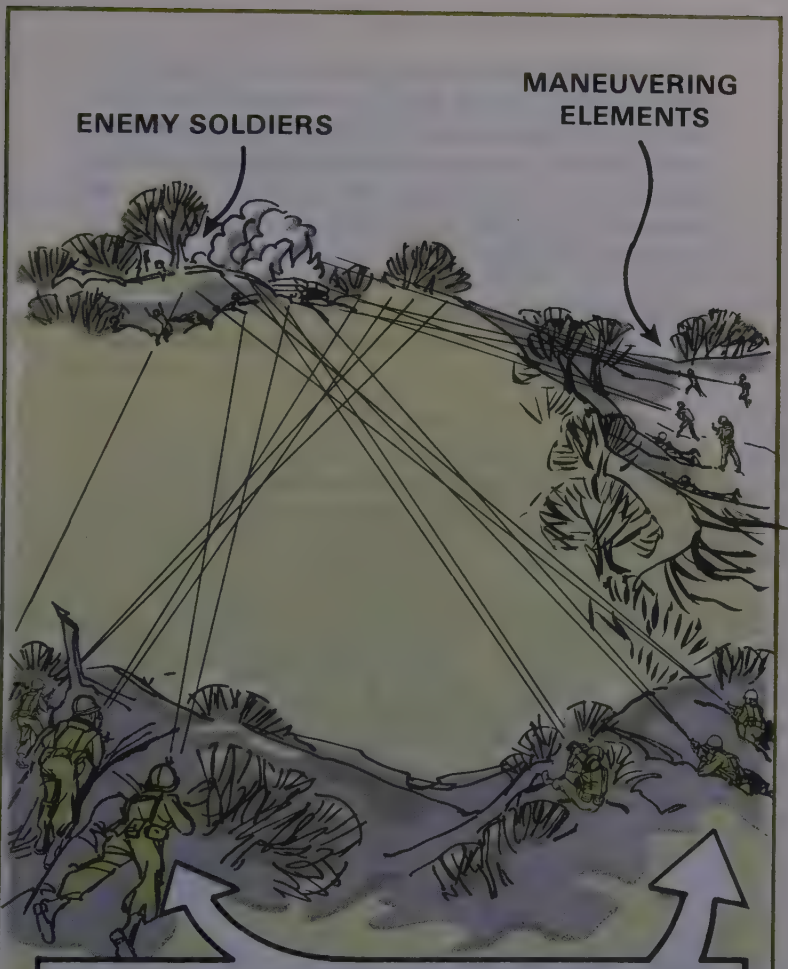
The overwatch element covers and protects the advance of maneuvering units with its fire. Whenever possible, the unit that is to establish the overwatch position moves undetected into a firing position. A high volume of surprise fire from an unexpected direction has a much greater effect than fire delivered from a known position. When the overwatch unit is in position, the following usually takes place:

**A heavy volume of fire is placed on the enemy position to gain fire superiority.**

**When fire superiority has been gained and the enemy is pinned down and not returning effective fire, the rate of fire is reduced. However, fire superiority must be maintained.**

**When the maneuver element nears its objective, the rate of fire is increased to cause the enemy to go to ground and allow the maneuver element to initiate its assault before the enemy has time to react.**

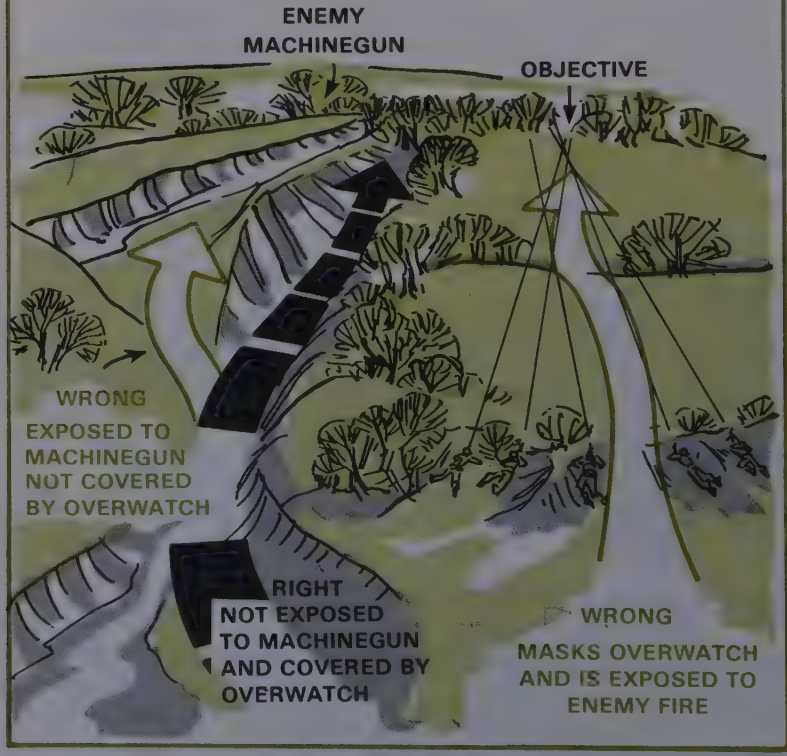
**When the assault begins, or on signal, the overwatch element either ceases fire, shifts its fire to another target area, or leads the maneuver unit across the objective with fire.**




Overwatching fires leading the maneuver element across the objective.

Overwatch positions should be selected to allow fire support for the maneuver element without having its movement mask the overwatching fires. For this reason, elevated positions are often selected for the overwatch element, and the overwatch position is usually to the flank of the maneuver element.

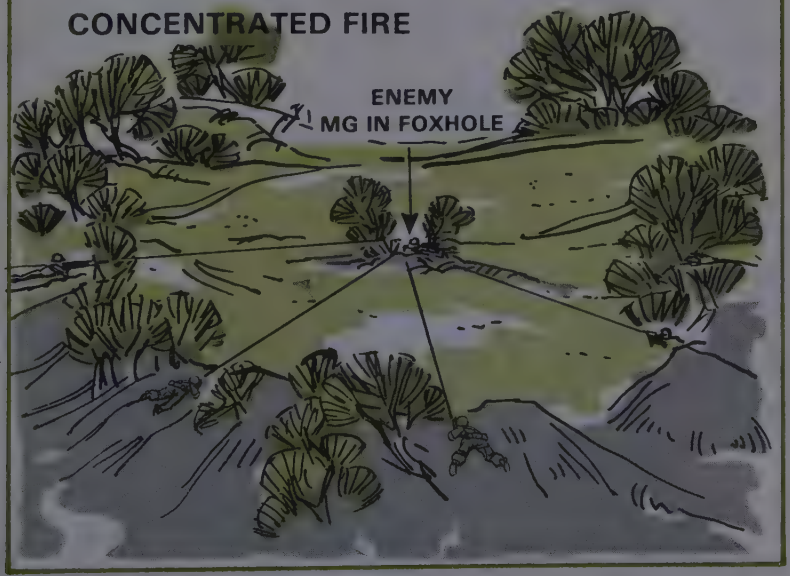
**The maneuver element should neither mask overwatching fires nor move outside their protective umbrella.**



The key to forward maneuver is effective fires placed on the enemy. Fires from the overwatch element destroy or suppress the enemy. Suppressive fires stop him from placing fire on friendly forces.

The squad can deliver concentrated fires and distributed fires. In both types of fire, the squad leader must control the fire of his squad. The squad leader must insure the squad's fires are directed on the enemy.

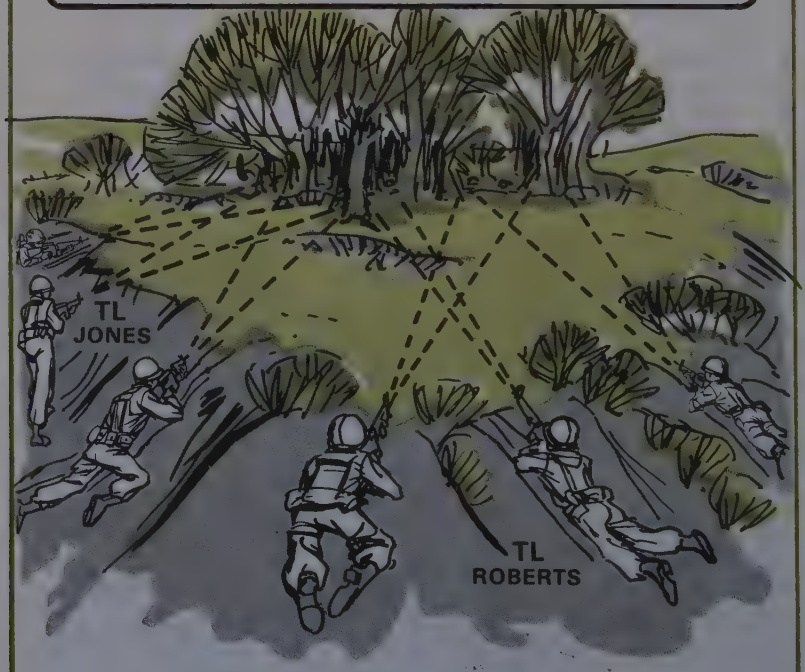
**Concentrated Fires** are directed against a specific identified target -- such as a machinegun. All personnel fire at the target. To aid in this type of fire, deploy the squad so the fire is directed from several directions.



## Distributed fire

The squad leader may get the mission of placing suppressive fire into an area. Here the squad leader distributes fire to insure the squad's entire area is covered.

**"Jones, cover from the dead tree left; Roberts, cover to the right of it."**




The squad leader normally gives half of the target area to each fire team. Within each fire team distributed fire is spread in width and/or depth to

keep all parts of the target under fire. Fires from individual weapons should be placed on likely locations for enemy positions rather than into a general area. Each RIFLEMAN fires his first shot on that portion of the target that corresponds to his position in the squad.

**DISTRIBUTED FIRE**

He then distributes his remaining shots over that part of the target extending a few meters right and left of his first shot. He covers that portion of the target on which he can deliver accurate fire without changing his position.

The GRENADIER/RIFLEMAN fires his first round into the center of mass of the target of his fire team. He then distributes his shots over the remaining target area.

The portion of the target which each AUTOMATIC RIFLEMAN can cover depends upon his position and the range. Whenever possible, each automatic rifleman should cover the entire fire team target.

If a MACHINEGUN crew is attached to the squad, the squad leader must tell them where to shoot by assigning sectors of fire. When placing automatic suppressive fire on the enemy the tendency is to shoot high -- therefore, initial bursts should be placed low and then worked up to the target.

When a Dragon is attached to the squad, it will stay under the squad leader's direct control. It will be fired only at important point targets such as

enemy armored vehicles or crew-served weapons. In the absence of proper Dragon targets, the Dragon gunner will fire his rifle. Normally, the platoon leader will give specific instructions to the squad leader on what type targets the Dragon should engage.

These techniques of distributing fire permit the squad to rapidly place fires into an area and effectively cover the entire area, even if you cannot see the enemy. This method is employed without command. Distributed fire is the quickest and most effective method of insuring that all parts of the target are brought under fire.

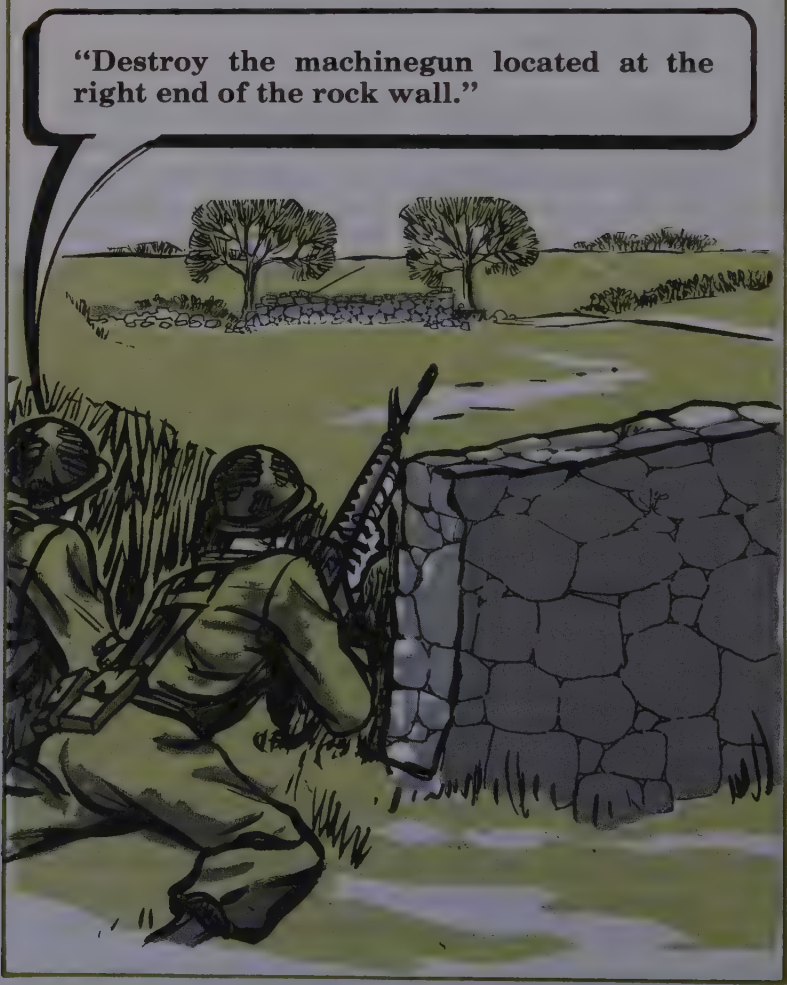
## Maneuver Element

The squad normally will close with the enemy as part of the platoon. As the maneuver element of the platoon closes on the enemy, supporting fire will increase to the maximum rate. The maneuver element moves as close to supporting fire as possible. As these fires are shifted from the enemy positions by the platoon leader, the squads, delivering a high volume of fire, close with and destroy the enemy.

The platoon leader controls the supporting fire to provide continuous fire on enemy positions and to seal off the battle area. Squad leaders maintain contact with adjacent squads and inform the platoon leader if a gap develops.

The platoon leader normally specifies the mission objective for maneuvering squads.

**The mission may be oriented on the enemy --**

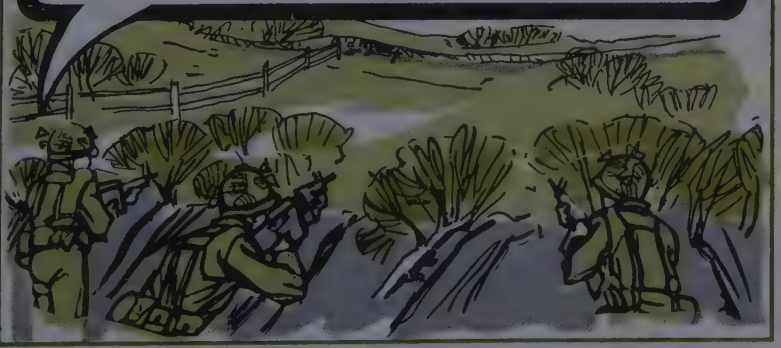


**OR... the terrain,**

"Secure the rock wall and position your squad to support the platoon as we assault the farm house."

**OR... a combination of both.**

"Take out the two enemy positions located in the trench at the end of the fence, then hold the trench against any enemy moving in from the east."

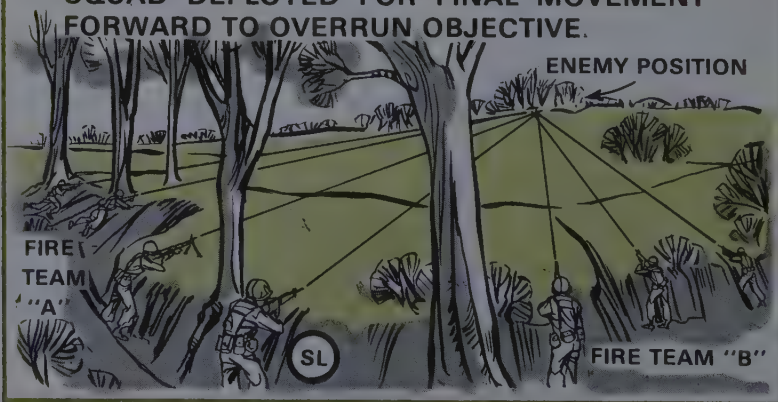


The maneuver element moves forward using the best available routes. General routes for movement forward are normally assigned to the squad by the platoon leader. As with any movement, the rules for movement are followed and each individual follows the route which provides the most cover and concealment.

When not under enemy fire, the maneuver element uses the movement techniques described in the previous two chapters.

At a designated location or when effective enemy direct fire is received, the squad may be ordered to deploy for the final movement forward to overrun an enemy position. This usually happens in the last covered and concealed location before the enemy position. When the squad deploys, the two fire teams generally come abreast to place all fires of the squad on the enemy. The squad leader takes a position between the two fire teams to better control them.

SQUAD DEPLOYED FOR FINAL MOVEMENT FORWARD TO OVERRUN OBJECTIVE.



On order, the squad moves forward as rapidly as possible by crawling, short rushes, or employing rushing fire. Within the squad, fire and maneuver by fire teams, buddy teams, or individuals should be used. During movement, control by squad leaders and platoon leaders is critical. Without control, the attack will quickly bog down. The squad leader and team leaders must make aggressive efforts to keep the squad moving forward. Care must also be taken to insure men don't bunch up during this phase of the attack and present good targets to the enemy. The fire team leader is the key man. He moves using the best method for the situation facing him, and the fire team members follow his example, using every advantage offered by the terrain.

**Crawling** may be required when the fire team faces intense enemy fire and has little cover. Individuals use either low or high crawl depending upon their situation, the requirement for speed, and the example of their fire team leader.

This method is slow but reduces exposure to enemy observation and fire. When not moving forward, individuals place suppressive fire on the enemy. If necessary, the members of the squad may advance all the way into and through enemy positions using the crawling method.

**Short rushes** from covered position to covered position may be used when enemy fire allows brief exposure. Maneuvering fire teams, buddy teams, or individuals may advance by short (2 to 3 seconds) rushes to avoid accurate enemy fire.

Under exceptional conditions, the entire squad may be required to make the final move into the enemy position in a single rapid rush. The squad does this only when no other course of action is open to it because --

- **the squad is receiving a heavy concentration of indirect fire and immediate and decisive movement is necessary to prevent its annihilation.**

OR

- **the complete lack of cover and concealment prohibits another course of action.**

Movement must be rapid and accompanied by a heavy volume of fire. The assault should be conducted over a short distance that can be covered quickly and where the enemy's defense may be quickly overrun.

For effect on the enemy, such an attack should be conducted with fixed bayonets and each man yelling as loudly as possible.

The attack continues until the squad's objective is cleared of resistance. Individual enemy positions are cleared by fire team or buddy team fire and maneuver. One element fixes the enemy position with fire and the other maneuvers closer to the position to destroy it with hand grenades, demolitions, or fire, as shown in the picture below.

The squad may mark enemy positions with smoke (e.g., from the M203) or tracers to allow supporting tanks and TOWs to knock them out.

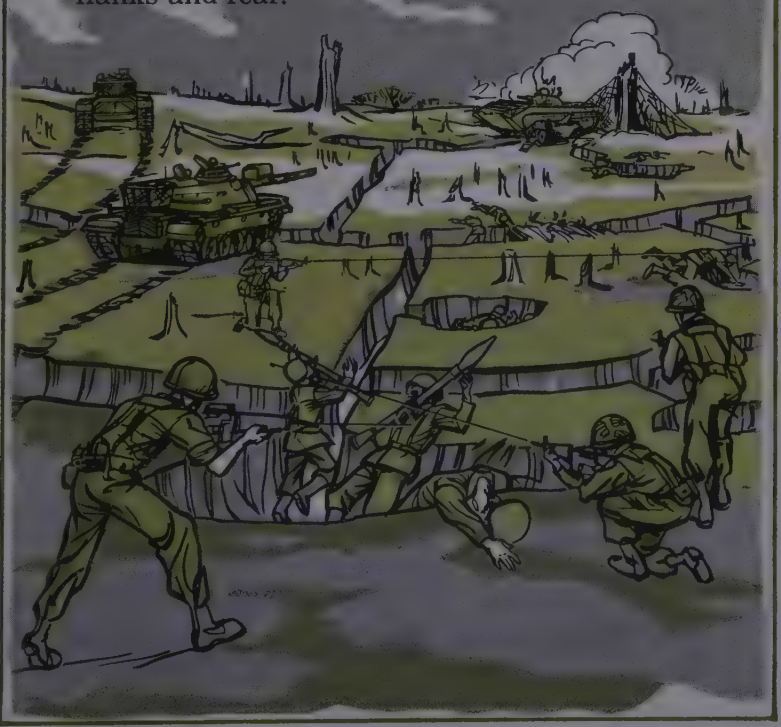
## DISMOUNTED INFANTRY ATTACKING WITH TANKS

Light infantry squads may be employed with tanks. Tanks provide firepower, shock effect, and antitank protection.

Tanks may be used to overwatch or to attack with the dismounted infantry.

**When tanks are overwatching the attack,** the squad will often mark targets for the tanks. Targets for tank fire can be called through the platoon leader. Often, methods for marking targets for tank gun fire will be determined prior to the attack. Common methods include marking a target with smoke or tracer fire.

**When tanks are attacking with infantry,** the infantry will generally move behind the tanks, destroying enemy positions that are overrun and protecting the tanks from enemy fire to their flanks and rear.



## CONSOLIDATION AND REORGANIZATION

The purpose of consolidation and reorganization is to prepare the squad for future action. It covers the period (which may be very brief) from the completion of the assault to when further action is taken to exploit success.

### Consolidation

Consolidation includes all measures taken to organize and strengthen a newly captured position to defeat enemy counterattacks. Immediately upon seizure of the objective, the squad leader will post security, assign sectors of fire, and make a visual reconnaissance to the front to spot deeper enemy positions and to watch for enemy counterattacks.

Enemy artillery and mortar fire, followed by sharp counterattacks, can be expected on a newly captured objective. To repel such counterattacks and to provide protection for the squad, the squad leader quickly prepares a defense of the position. The initial defense plans will have been prescribed by the platoon leader in his attack order. The squad leader gives primary consideration to the positions of his fire teams. He also gives consideration to the positions of the grenadier/rifleman and the automatic rifle in each fire team. Local security is established to the front and flanks as directed by the platoon leader. Care is taken to keep proper dispersion as enemy indirect fire can be expected. Troops dig in as necessary.

The position is improved until orders are received from the platoon leader.

### Reorganization

The squad leader accomplishes the following during reorganization:

- **Makes on-the-spot assignments to replace fire team leaders and grenadier/riflemen who become casualties.**
- **Redistributes ammunition, magazines, and grenades, to insure each man has enough.**
- **Removes casualties to covered positions.**
- **Sends a messenger to tell the platoon leader of the situation, the position of the squad, the casualties incurred, and the status of ammunition supply.**
- **Disarms enemy prisoners and sends them to the platoon leader. Prisoners and enemy dead are searched for papers, documents, and identification. Such material is immediately sent to the platoon leader.**
- **Ties in with units to his flanks.**

## Section III

# MECHANIZED INFANTRY-- OFFENSIVE OPERATIONS

The mechanized squad normally moves and fights mounted until required to dismount by enemy action, terrain, or manmade obstacles. When moving and fighting mounted, tanks habitually lead the infantry, so normally, mounted mechanized infantry is overwatching or following tanks. In some cases terrain (e.g., water obstacles) will not allow tank movement or tanks may not be available and the infantry may lead mounted.

## ACTIONS ON CONTACT

"Actions on Contact" is a phrase that describes what happens when a moving unit sees the enemy for the first time or receives fire from the enemy. When contact is made, the actions of the unit will often decide the outcome of the fight. Whether your squad is leading or overwatching, you must be prepared to rapidly react to the situation. This means that you may have to accomplish several things at once – e.g., return fire, take cover, and report; OR return fire, report, and maneuver; OR (if you see the enemy first) report, maneuver, and fire. The following discussion addresses these kinds of actions on contact for leading squads and for overwatching squads. **Keep in mind that even though the actions or reactions may be discussed separately for clarity, many of these actions will occur at the same time.**

## MOUNTED MOVEMENT

### Leading Squad

When the leading squad receives fire, several actions take place simultaneously -- the TL/gunner and the men in the cargo hatch immediately return fire, the driver moves the carrier to a covered and concealed location, and the squad leader sends a report to the platoon leader. The report should tell the platoon leader --

- **The number and type enemy weapons and personnel involved.**
- **What the enemy is doing.**
- **Where they are.**
- **Friendly casualties (if any).**

An example of such a report could be: "I have taken fire from an SPG-9 located on the hill 300 meters east of the road." The report from the squad leader will often be the basis of platoon and company decisions on how to attack the enemy. The reports must be immediate and accurate.

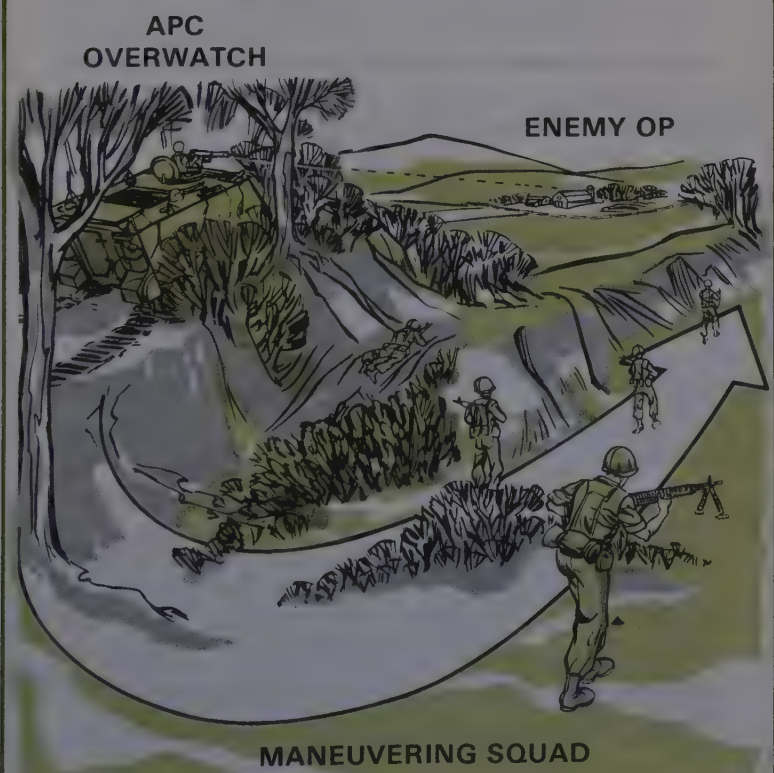
Based upon the report of the lead squad, the platoon leader may direct that squad to dismount to place more fires on the enemy or take other action.

When antitank fire is being directed at the carrier, movement of the carrier into a covered location must be the first priority. The carrier is then repositioned as necessary to place effective fire on the enemy. If engaged by ATGMs and cover and concealment is not immediately available, use the techniques shown on pages 76 to 81.

When the enemy has not seen the squad, the squad leader should immediately report this fact to the platoon leader and take no action to alert the enemy until he receives instructions from the platoon leader.

When a small enemy force is discovered (for example an OP), the squad might be ordered to clear it. In such a case the squad leader will first try to maneuver the carrier into a position where the fires from the carrier can destroy the enemy.

If mounted action is not appropriate then the squad will dismount to clear the enemy. Here the carrier team overwatches the maneuver team and engages the enemy, moving from firing position to firing position as necessary to support the maneuver element.

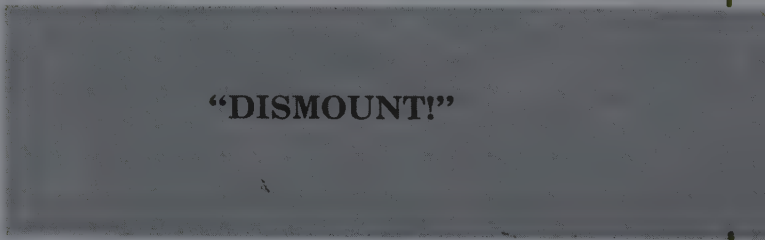


## DISMOUNTING UNDER ENEMY FIRE

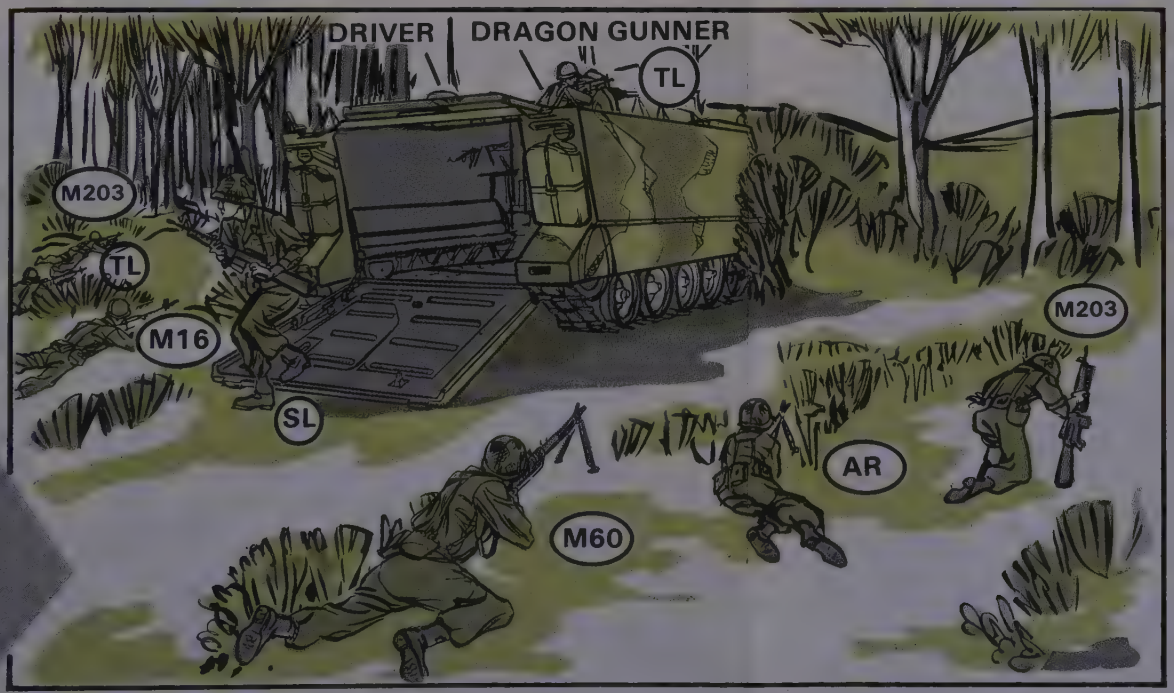
When the squad dismounts under fire, it must do so rapidly. This requires the squad to be able to react immediately with little or no instruction from the squad leader. Ideally, the only command is "DISMOUNT" or "DISMOUNT RIGHT/LEFT!" When the squad hears that command, each man must know exactly what he is expected to do from the moment the carrier stops until the maneuver team begins moving on foot.

Your men will function smoothly only if you have established and practiced squad dismount drills. There are basically two dismount drills that cover almost all situations.

- Dismount on both sides. The command is **"Dismount!"** Men on the right side of the carrier dismount to the right; men on the left side dismount to the left.

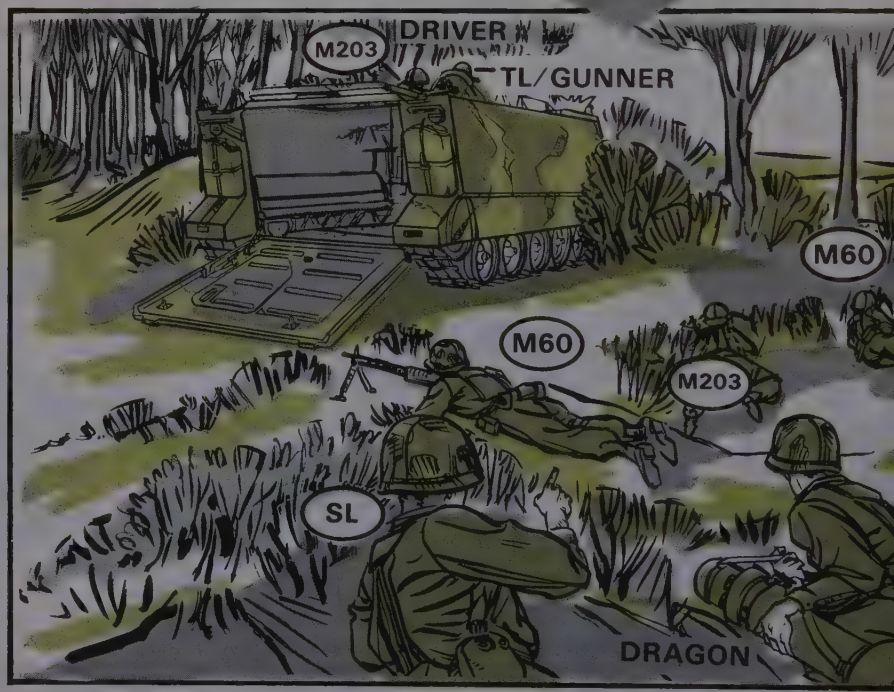


In this example, enemy fire is coming from a position straight ahead of the carrier and the squad leader was told to dismount and destroy the enemy. Upon hearing the command **"Dismount!,"** the driver automatically moved into a covered and concealed position, faced the carrier toward the enemy, and dropped the ramp. The carrier team is composed of the TL/gunner, driver, and a Dragon gunner. The maneuver team has seven men, including the squad leader. Note that as they dismount the men on each side move to the flanks of the carrier but don't go forward. This is so they will be able to see the squad leader.

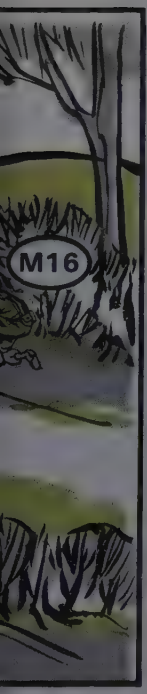


FOLD OUT

"DISMOUNT RIGHT!"




Enemy fire from the other side could have forced the squad to dismount left.




- Dismount Right (Left). The command is **"Dismount Right (Left)!"** As the maneuver team comes out of the carrier, they all go to the same side.

In this situation, enemy fire is directed at the carrier from the left front. The driver was able to quickly move into a covered position but was unable to face the carrier toward the enemy position. Because the enemy fire on the left side of the carrier is heavy and there is little cover to that side, the squad leader wants the entire maneuver team to get off the carrier and move to the right side. The carrier team is composed of the TL/gunner, driver, and a grenadier. The maneuver team has six men, an attached M60, and an attached Dragon.

If the maneuver team is large enough to operate as two elements, try to have the two elements ride on opposite sides of the carrier. This makes it easier to retain control when dismounting.

The men firing from the cargo hatch should be the last ones to get off the carrier. Their fires provide cover for the men inside as they dismount.

When dismounting, only the maneuver team gets off the carrier. Those men who have been designated as part of the carrier team remain mounted and place suppressive fire on the enemy to cover the dismounting team.

The APC draws enemy fire, so as soon as you get off, move the maneuver team away from the carrier. You can give a very brief order to your team leader or you can use arm-and-hand signals to get the team moving.

In many cases, your carrier team will be controlled by the platoon sergeant as soon as you begin moving the maneuver team. However, it may take a few minutes for this to happen, so tell the TL/gunner what you are going to do and what you want him to do **before** you dismount. If you have trained well enough and your TL/gunner knows how you operate, it may not be necessary to give him any instructions.

### Trailing/Overwatching Squads

When overwatching a bounding element and you spot enemy fire directed at it, immediately

give a warning over the radio and bring fire to bear on the enemy. If necessary, move to place more effective fire on the enemy, if this can be done without exposing yourself -- and if the platoon leader OK's it.

If the lead element has received AT fire, trailing APCs should immediately engage the enemy and move to covered locations.

When you spot an enemy Sagger fired at a vehicle, give the warning and fire at the place where you think the missile came from based on the smoke trail.

Other APCs fire at points about 100 meters right and left of that location. APCs left of the base (spotting) APC fire left and APCs right of the base APC fire right. This allows the platoon to distribute fires in the area from which the missile came and gives you a better chance of suppressing or destroying the gunner.

When overwatching from a temporary halt (as when the platoon is bounding) and you spot an enemy tank that has not seen you or the maneuver element, immediately give a warning on the platoon radio net and take your firing instructions from the platoon leader. When the enemy tank is firing, or you think it is preparing to fire, give the warning and engage the tank with the Dragon (if the tank is in range). If you do not have a Dragon with your squad, or the tank is out of range, give the warning and take your instructions from the platoon leader.

When the platoon is in traveling overwatch, the overwatching/trailing squads must also be prepared to react. When the lead squad receives fire from enemy infantry or tanks, stop the carrier in a hull down position and place distributed fire on the enemy position. The platoon leader will tell you if he wants you to maneuver.

## DISMOUNTED MOVEMENT

Although the mechanized infantry squad normally moves and fights mounted, it will sometimes be required to operate dismounted. This may occur when the terrain will not permit mounted movement (dense woods, marsh); when visibility is greatly reduced by fog, heavy rain, smoke, or dust; when the enemy has a strong antiarmor defense; or when enemy obstacles prevent moving mounted (minefields, tank ditch). The decision to dismount is usually made by the platoon leader.

When ordered to dismount during offensive operations, the squad may act as the lead/bounding squad and be overwatched by the remainder of the platoon or it may act as a trailing/overwatching squad for another element. Depending upon the strength of the squad and the weapons it carries, the maneuver team may operate with one or two fire team wedges (see chap 4). Action on contact for the maneuver team is based upon its organization.

If the maneuver team has two fire teams, its actions on contact are the same as those prescribed for light infantry (see page 101), whether it is leading or trailing/overwatching.

If the maneuver team has only one wedge and is leading or bounding dismounted, its action on contact is to seek the nearest cover, return fire, and report. Marking the enemy location for friendly overwatch elements will often be the key to quickly defeating enemy fires. When contact is made, enemy positions can be marked with smoke or tracer fire. To prevent putting fires on friendly forces, overwatching APC elements should fire high first; then move fire down onto the enemy based on instructions from the dismounted element.

When operating as an overwatch element without the carriers, the maneuver team can still deliver point fires, but its capability to distribute fires is reduced. For distributed fire, the squad leader fires center of mass of the target, men on his left fire left of his tracers, and those on the right fire to that side.

## CLOSING WITH AND DESTROYING THE ENEMY

Once contact with the enemy is made, the squad must close with and destroy him. Based on the platoon leader's decision, the squads may:

| | |
|---|---|
| 1 | **Close with the enemy mounted and remain mounted all the way across his positions.** |
| 2 | **Close with the enemy mounted and dismount on or near his positions.** |
| 3 | **Dismount on contact, close with, and destroy the enemy on foot.** |

### CLOSING WITH THE ENEMY

The phrase "close with the enemy" refers to how the squad, platoon, or company gets from the point where contact is made to the positions occupied by the enemy. It does not refer to a "charge" against enemy positions, although in some very rare cases that may be the best course of action.

Whenever possible, units close with the enemy using fire and maneuver, taking full advantage of all available cover and concealment. Mechanized

infantry remains mounted as it closes with the enemy, unless there is an overriding reason why it should dismount. It may be forced to dismount by obstacles, terrain, or enemy forces.

Keep in mind that to effectively engage you with his antitank weapons, the enemy must see and track your carrier. So when closing with him while mounted, try to use completely covered routes. When these routes are not available, movement forward should be by short rushes (10-12 seconds or less) from covered position to covered position. These short rushes make it very difficult for an enemy ATGM or tank gunner to acquire and hit you.

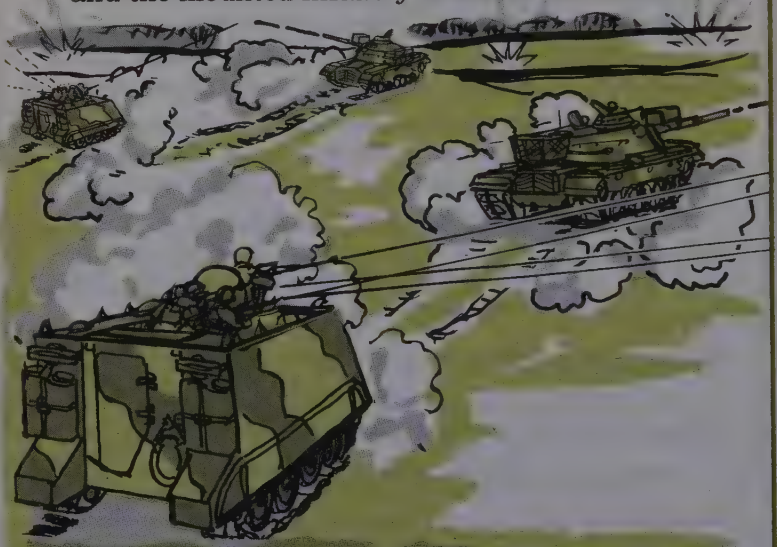
## CLOSE MOUNTED, REMAIN MOUNTED

This method is normally employed when the platoon is part of a tank-infantry team and when—

| | |
|---|---|
| 1 | **Enemy resistance is light.** |
| 2 | **The enemy antitank weapons have been suppressed.** |
| 3 | **Terrain allows rapid mounted movement onto and through the enemy positions.** |

Tanks lead and place a heavy volume of fire on enemy positions. Mounted infantry follow behind the tanks and suppress probable antitank weapons positions.

All elements of the team attempt to move close to the enemy position before deploying. At that time, the team commander will order the tanks to deploy and the mounted infantry to follow the tanks.



The squad leader controls the movement of his APC and directs the fires of his squad. He follows in the tracks of one of the tanks, watching the platoon leader's APC to determine how far to the rear of the tanks he should be. If he loses sight of the platoon leader, the squad leader attempts to keep approximately 100 meters to the rear of the tank he is following. Since the APC is about 100 meters behind the tank it should not have to stop if the tank halts to fire, but don't get so close to the tank that you are hit by fires directed at the tank. If the tank is put out of action, the squad leader directs the APC driver to follow another tank.

When the mechanized platoon deploys behind the tanks, each squad has responsibility for specific sectors of fire.

Small arms fire from cargo hatches is directed against close-in targets. Fire from the .50 caliber MGs is directed at longer range targets. Squads modify their sector of fire based upon their position. The squad leader must insure that fires from his squad are not directed at friendly APCs or tanks. Both .50 cal MG fire and the 40-mm HEDP round will penetrate the side of an M113 and damage tanks. Small arms fire will kill tank commanders and personnel firing from other carriers.

Not only does the squad suppress antitank weapons and protect the flanks and rear of the tank, but it must protect its own flank and rear. Assign areas of responsibility to each soldier positioned in the cargo hatch. A soldier on each side is normally responsible for the flank of the APC. He also places suppressive fire to the rear of adjacent tanks and between APCs. One man should cover the rear of the APC.

The most critical part of the mounted assault is moving over the enemy position. Enemy soldiers normally will be down in their positions protected from direct fire. As you move over the position, the APC should slow down so that handgrenades can be thrown and weapons fired into enemy positions. The troops must be continually alert for enemy antitank gunners who wait for armored vehicles to pass over their positions and then pop up to engage these vehicles from the flank or rear.

## CLOSE MOUNTED, DISMOUNT ON OR NEAR POSITION

This method is employed when the platoon is part of a tank-infantry team and when:

**Terrain or obstacles allow tracked vehicles to move close to the enemy but not onto his position.**

**The enemy has strong defenses, but his antitank fires can be suppressed until you reach his position, and the terrain allows you to move onto the position while mounted.**

This method is conducted like the first except that the squad will be told to dismount either before it reaches the enemy or on his positions. In either case, the platoon leader will indicate where to dismount and the direction of dismounted movement.

If the terrain forces dismounting short of the enemy positions, the final movement forward will be supported by the carriers (under platoon control) and tanks.

If the maneuver teams dismount on the enemy position, the tanks and carrier teams will normally continue to move rapidly across the enemy position. The carrier teams will protect the flanks and rear of the tanks. The dismounted infantry will mop up the enemy positions overrun by the tanks and APCs.

In some cases (normally in areas with short-range fields of fire), the tanks may slow down and

the dismounted infantry and APCs will follow close behind the tanks protecting them from close-range enemy antitank fires (see pages 120 to 121).

Regardless of whether the squads dismount on or near the enemy position, the carriers are usually controlled by the platoon sergeant once the maneuver teams dismount. In most platoons, the platoon leader will establish a dismount SOP for this method. The squad carrier team will usually have at least an M60 machinegunner in addition to the .50 cal gunner and driver.

## WHERE TO DISMOUNT

**DISMOUNT:**

| | |
|---|---|
| 1 | **Behind an enemy fighting position only when the enemy cannot engage the rear of your APC.** |
| 2 | **On an enemy fighting position to prevent the enemy from engaging your APC and to prevent him from engaging tanks from the rear.** |
| 3 | **In front of an enemy fighting position when enemy fire will not allow you to continue.** |

Men in the cargo hatch and the cal .50 gunner keep up a high volume of fire around the APC. Soldiers not in the cargo hatch dismount first and take up positions to fire on the enemy. They put out a high volume of fire to keep the enemy suppressed as the remainder of the personnel dismount. If there is a danger of enemy firing into the open ramp, the combat access door may be used. The squad leader must decide if the rapid dismounting offered by dropping the ramp offsets the temporary loss of armor protection. Dismounting on enemy positions is difficult and must be accomplished quickly without losing fire superiority.

## THE CARRIER TEAM

Once the maneuver team dismounts, the carrier team comes under the control of the platoon sergeant. Initially it continues to move forward behind the tank it followed onto the objective, firing at targets to the flanks and rear of the tank. Once the tanks stop, the carrier team follows the orders or actions of the platoon sergeant. For example, if the platoon sergeant's APC stops in a hull-down position behind a tank, the carrier team leader stops his APC in a similar position.

## DISMOUNT, CLOSE WITH AND DESTROY

This method is used when:

**The enemy has strong defensive positions and his antiarmor weapons CANNOT be suppressed.**

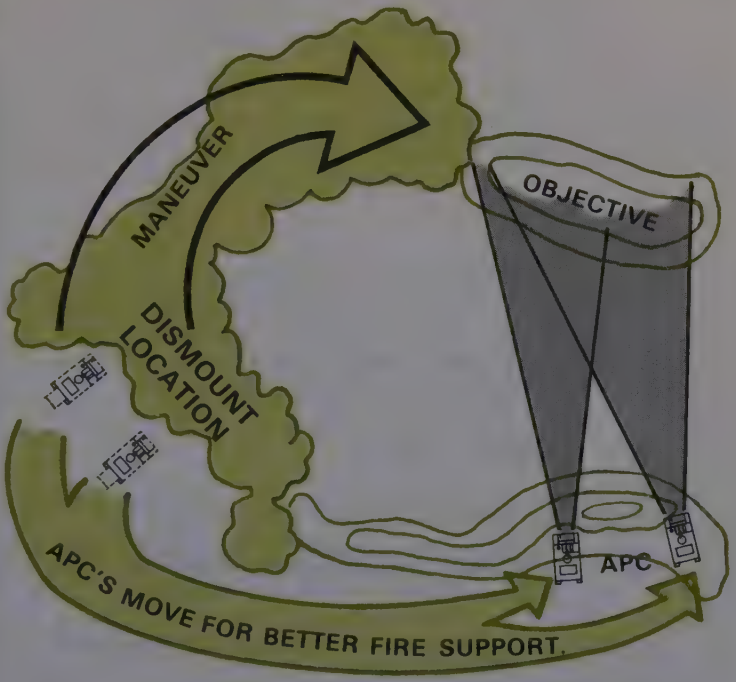
**The terrain will not support track vehicles (marsh).**

**There is an obstacle to mounted movement (dense woods, minefield).**

The platoon leader directs when and where the platoon will dismount. The APC should be in a covered and concealed position during the dismounting. APCs normally operate under the control of the platoon sergeant and, where appropriate, provide direct fire to support the platoon as it closes with the enemy. When APCs are to support the attack with fire, they must not reveal their position until the dismounted elements are out of the beaten zone of enemy return fire.

The platoon leader will normally direct what personnel and weapons will remain with the carrier team. The composition of the maneuver team will also be designated by the platoon leader and normally contains an M60 mg (LMG), several LAWs, grenade launchers, and hand grenades.

When the terrain allows the carriers to support the maneuver element of the platoon, the platoon overwatch element consists of the squad carrier teams with the gunners employing either the cal .50 machinegun or Dragon as appropriate. Based on the need for additional overwatch fires, more men may be designated to remain on the carriers or dismounted near them to man machineguns and Dragons.




If the carriers cannot support the platoon maneuver element, the squad carrier teams usually consist of the TL/gunner and the driver.

The maneuver team of the squad moves as part of the platoon and deploys under the platoon leader's direction. It closes with the enemy using the techniques prescribed for light infantry (see page 103).

## REORGANIZATION AND CONSOLIDATION

Mechanized squad leaders take the same actions as do light infantry leaders. **Additionally,** they must:

- **Position APCs.**
- **Resupply ammunition from their own carriers.**
- **Be ready to rapidly mount up and continue to move.**
- **If defending on the objective, dismount additional Dragons, machineguns, and other weapons from the APC as appropriate.**

## Section IV

# FIGHTING THE ENEMY IN RESTRICTIVE AREAS

Overcoming enemy positions in any restrictive area requires the same general techniques by both mechanized and light infantry:

- **Maintain control by seizing one area at a time.**
- **After you secure an area, part of the squad must hold it while the remaining force continues to assault.**

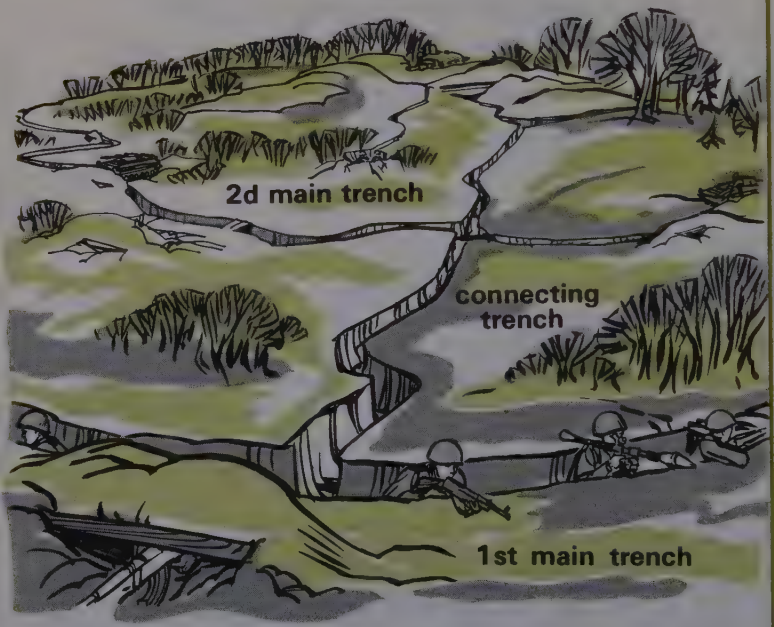
Four of the most common tasks which face the squad fighting in a restrictive area are:

- **CLEAR OBSTACLES**
- **CLEAR TRENCHLINES**
- **KNOCK OUT BUNKERS**
- **CLEAR BUILDINGS**

## CLEARING OBSTACLES

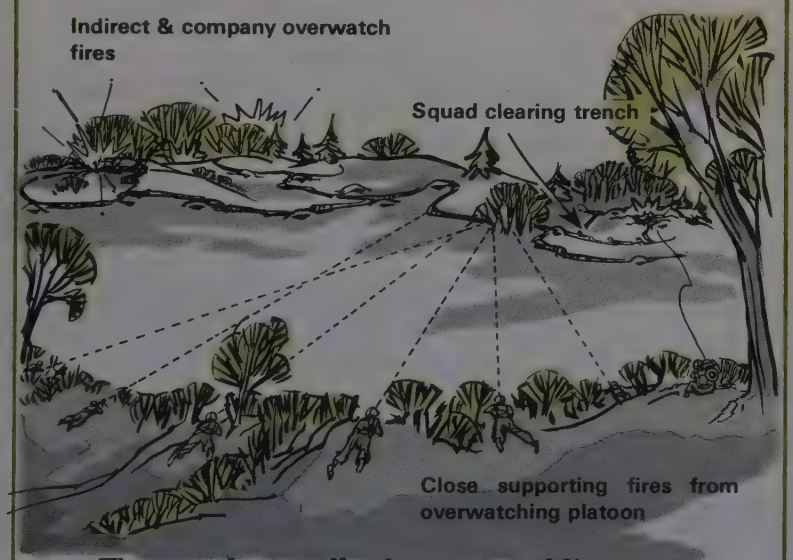
When attacking in restrictive areas, the squad will often be tasked to clear obstacles, e.g., barbed wire, mines -- often without engineer support. The way the squad does this is described in chapter 9.

# CLEARING TRENCHLINES




Trench systems are prepared to allow the defender freedom to move his forces to meet an attack. A trench system usually has narrow main trenches with connecting secondary trenches. Each trenchline has frequent turns and curves to keep fires from being placed down the length of the trenchline. A system also has fighting positions, such as bunkers, constructed at intervals.

One trenchline supports another. The defender can continue to deliver a heavy volume of fire on an assault force, even after the first trenchline has been overrun.



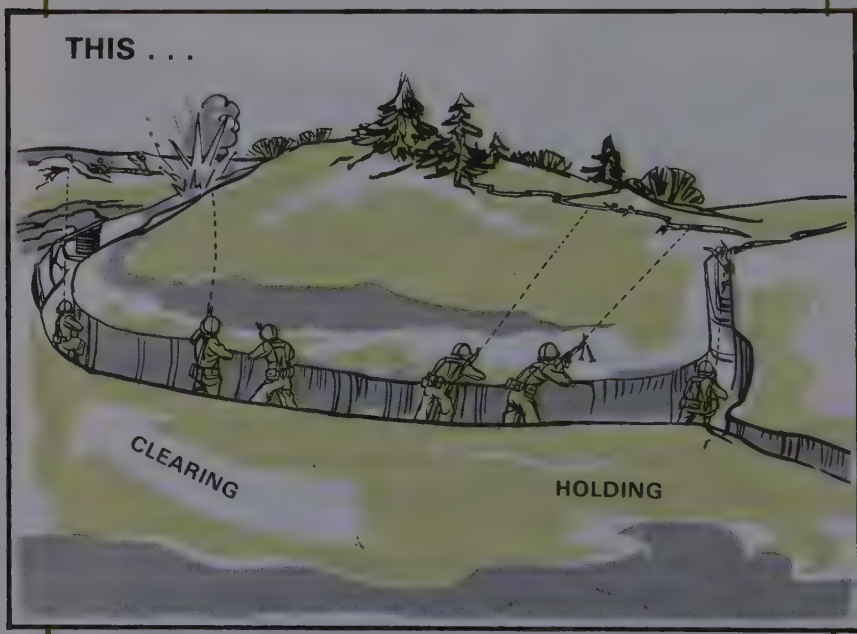

The squad normally clears a trenchline as part of the platoon and company assault. Its objective is a specific section or point in the trenchline, and it will normally be supported by a platoon or company overwatch element.

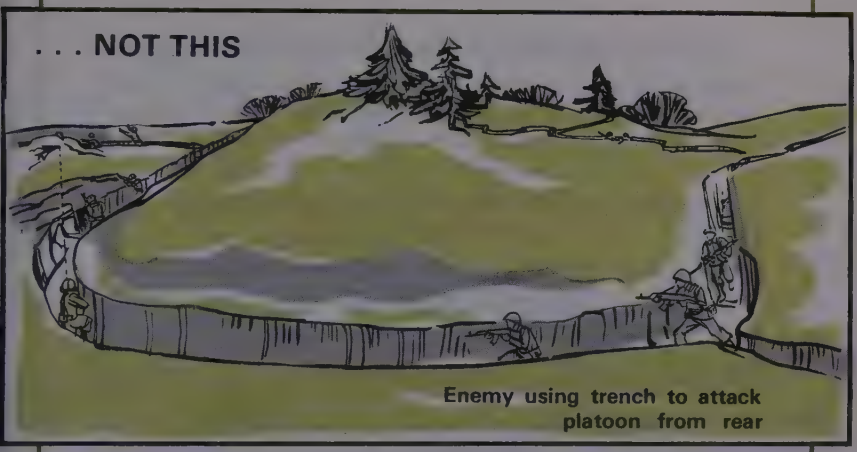
To clear a trenchline, fire teams normally break down into two- or three-man buddy teams.

Upon penetrating the trenchline, one buddy team secures and holds that penetration point. That buddy team covers the rear while the trenchline is systematically cleared by other buddy teams.

After securing the penetration point, the squad should clear its section of the trench:

- **in only one direction.**
- **along the main trench, leaving a buddy team to hold each connecting trench. You don't want to leave an unsecured trench behind you.**






Enemy using trench to attack platoon from rear

## TECHNIQUES

- **USE the existing trench as protection from indirect enemy fire and friendly supporting fire.**
- **MOVE by buddy teams, with the men covering each other.**
- **CLEAR the trench in front by using hand grenades before turning a corner or entering a bunker.**
- **MAINTAIN an interval between buddy teams to prevent two teams from getting caught by the same enemy fires.**

As one buddy team takes casualties, runs out of ammunition, or secures a connecting trench, the next buddy team passes through and continues to clear the trenchline.

**Key weapons in the trenchline assault are**

**MACHINEGUNS used to destroy and suppress fighting emplacements.**

**GRENADE LAUNCHERS used, because of their trajectory, to put fire into trenches in front of the leading team.**

**LAWs used to destroy fighting positions. Consider backblast before firing them.**

**HAND GRENADES** used just prior to entering the trenchline and after entry to clear enemy positions and to throw in front of the leading buddy teams.

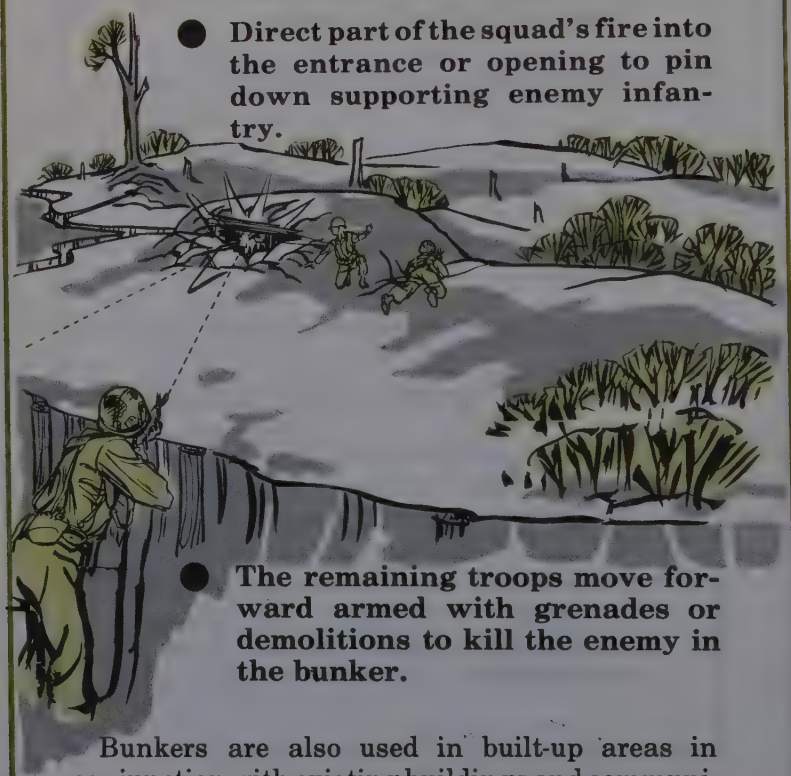
**FLAME WEAPONS** used to destroy crew-served weapons, especially in bunkers.

**DRAGONS** used with the platoon or company overwatch element to destroy enemy crew-served weapons and armored vehicles (remember -- the minimum range is about 100 meters). The squad clearing the trenchline may have to designate targets for them.

## KNOCKING OUT BUNKERS

The squad should attack one bunker at a time.

- **Always approach the structure from the bunker's blind side, watching out for mutually supporting positions.**
- **Direct part of the squad's fire into the entrance or opening to pin down supporting enemy infantry.**



- **The remaining troops move forward armed with grenades or demolitions to kill the enemy in the bunker.**

Bunkers are also used in built-up areas in conjunction with existing buildings and communication trenches. The techniques for clearing bunkers and buildings are similar.

## CLEARING BUILDINGS

The rifle platoon may be assigned the mission of clearing specific buildings. The platoon leader will organize the platoon into a maneuver and an overwatch element. When necessary to blow a hole to allow entry into a building, a breaching element to emplace charges may be designated by the platoon leader.

To clear a building the platoon will --

- **Isolate the building from other enemy positions using all available fire from the overwatch element.**
- **Seize an initial foothold or entry into the building with the maneuver element.**

When told to clear a building, the squad leader assigns men to --

- **Clear rooms (assault team). This is normally done by a two-man team.**
- **Support the assault team(s).**
- **Emplace demolition if required.**

The assault team(s) --

- **Assaults to gain an initial foothold in the building.**

- **Clears the building or parts of building assigned to the squad.**

The support team --

- **Provides suppressive fire for the assault team.**

- **Consists of the rest of the squad armed with automatic rifles, grenade launchers, crew-served weapons, APCs, tanks, and any other direct fire weapons.**

- **Secures cleared portions of the objective.**

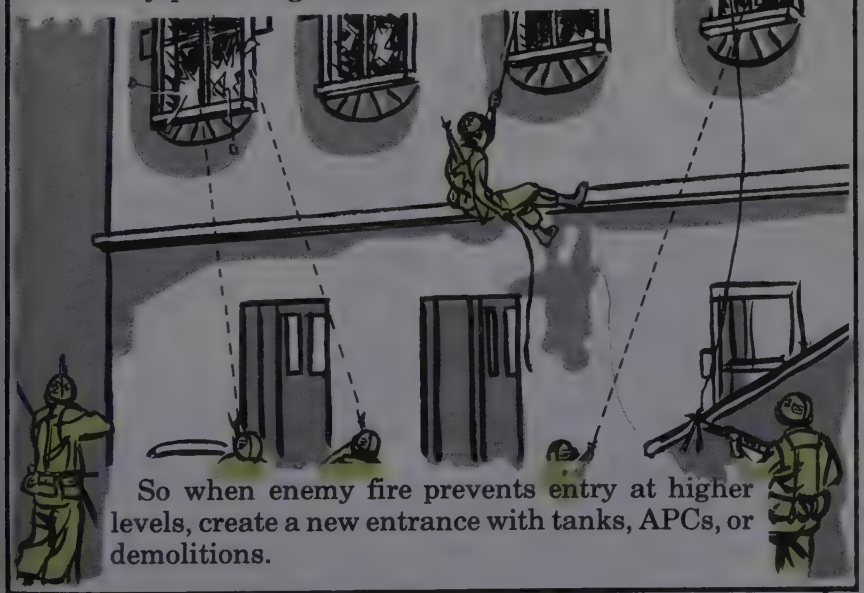
The support team will normally have one or more designated assault teams to replace the initial assault team if that team runs out of ammunition or takes casualties.

Designated individuals are prepared to place demolitions to blow holes in buildings for the assault team to enter. After blowing a breach, they will become part of the support team.

# TECHNIQUES OF ENTERING A BUILDING

**Enter at the highest point possible.** Ladders, drainpipes, vines, grappling hooks or APCs may be used, or movement may be from roof to roof when buildings are close together. Oftentimes, supporting fires from other areas will make this difficult to do, for men climbing up the sides of buildings are highly vulnerable to enemy fire.

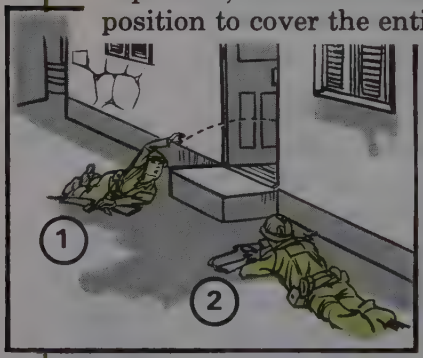
**Do not enter by doors or windows unless** you can destroy any mines and kill enemy infantry protecting these entrances.

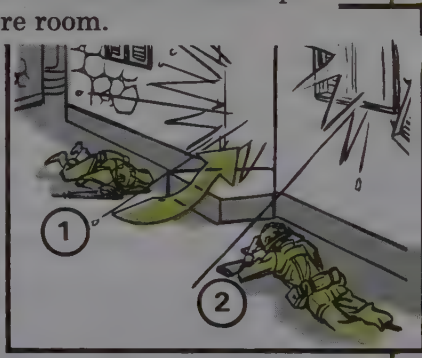


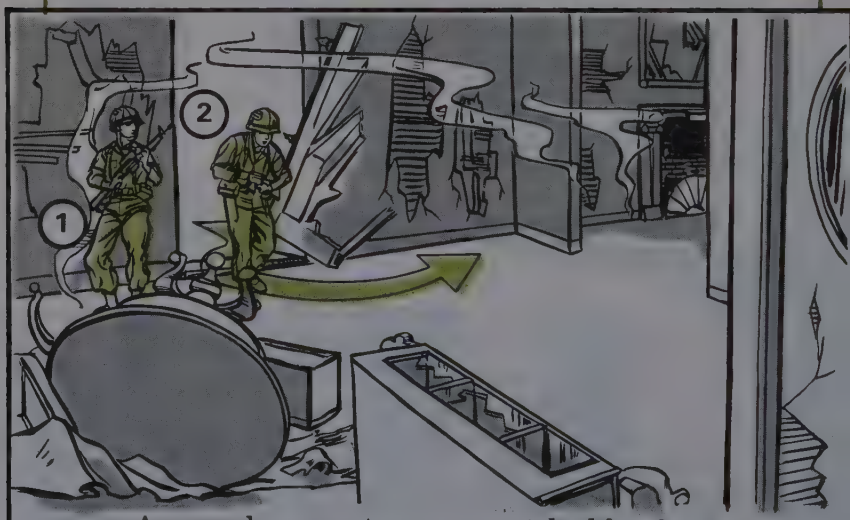
So when enemy fire prevents entry at higher levels, create a new entrance with tanks, APCs, or demolitions.

# TECHNIQUES OF CLEARING A ROOM

One man throws in a grenade. After the explosion, one man enters the room and takes up a position to cover the entire room.




A second man enters, overwatched by the first man, to search the room.

When appropriate, use direct fire to clear a room before entry. One team fires through the door or wall while another team fires through the floor or ceiling. M60 MGs are much better than M16s for doing this because they fire a heavier bullet which is less likely to be deflected.

## *POINTS TO REMEMBER*

- **Streets and alleys are good routes of advance, but they also provide the enemy with killing zones and must be used with caution when fighting around buildings.**

- **Rubble resulting from artillery fires or airstrikes slows the advance of the attacker but also provides good cover and concealment for both attacker and defender.**

- **It is difficult to determine the location of enemy weapons. Nearby buildings cause sounds to be magnified and echoed along streets. Dust and smoke from projectiles and incendiaries reduce visibility.**

- **Defender and attacker are in close proximity during the attack. Normal close support from supporting arms is greatly reduced because of restrictions posed by tall buildings, thick walls, and fences.**

- **Buildings are ideal for the use of boobytraps. Certain steps may be taken to avoid them or lessen their effect.**

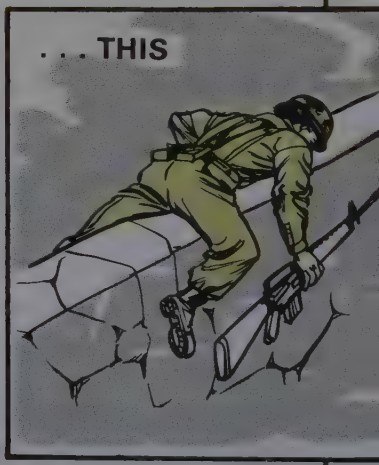
  - Mark entrances used by the search team with chalk, engineer tape, or in some other manner. Teams should use these entrances, since they are known to be clear.

  - If you must use stairs, take two or three steps at a time.

- **Proper individual movement is important, and methods of movement must be evaluated. One situation may call for speed and aggressiveness, while another may require stealth. Certain techniques should be stressed to insure proper movement.**

  - When moving along streets and alleys, select cover in advance. Hug walls and move from cover to cover. Avoid moving in front of doors and windows. Above all, do not bunch up.

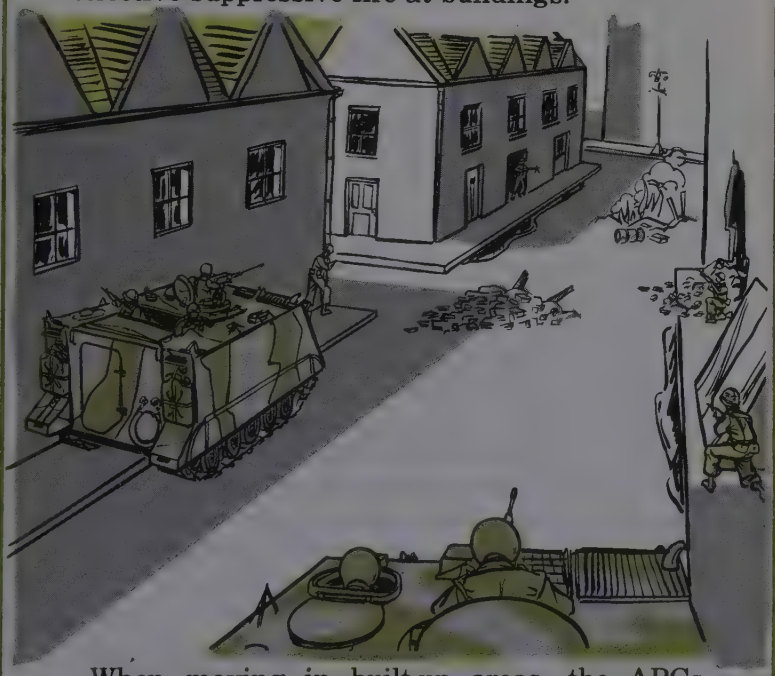
- Roll over walls quickly, presenting only a hard-to-hit target.




- When crossing a street, move directly rather than diagonally. To limit exposure, teams frequently cross together.
- **Be careful when using grenades.**
- Do not throw grenades up stairs (as they may roll back down).
- Throw grenade into rooms vigorously. This will make it ricochet prior to exploding and deny the enemy the opportunity to throw it back.

## APCs and Tanks in Built-Up Areas

APCs and tanks, normally used to overwatch the movement of dismounted infantry, can use their caliber .50 machinegun to deliver very effective suppressive fire at buildings.



When moving in built-up areas, the APCs should hug the side of the street to minimize exposure to enemy antitank weapons. Riflemen in or moving with the carriers or with tanks must be watchful for enemy on rooftops and upper stories trying to throw hand grenades down open hatches, as well as watching for enemy RPG teams.

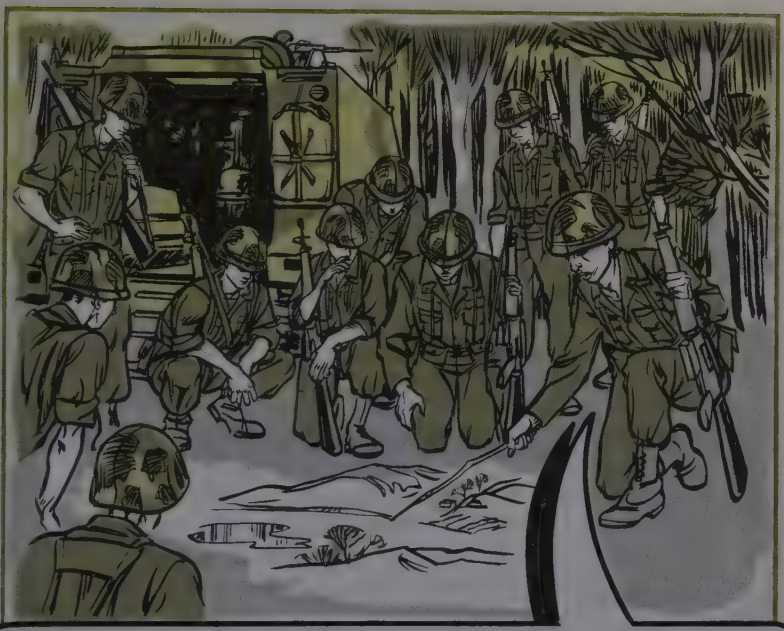
## Section V

# THE SQUAD ATTACK ORDER

Even if you understand how to fight, your squad will be successful only if you give them clear and complete orders. Make sure that your order is only as long as it needs to be because too many details lead to confusion. On the other hand, if you make it too short, your men may not understand what they are supposed to accomplish.

When the platoon leader issues his order for an attack, he will try to take the squad leaders forward and give the order while looking at the ground over which the platoon will operate. Even if you cannot see all the way from the line of departure to the objective, you normally can see enough to understand how your squad must move and what it must accomplish. Based upon the platoon leader's order and what you were able to see, you can prepare and issue an order to your squad.

Appendix C tells you how to prepare the order and what should be included. The following example of a squad attack order illustrates how an order might sound for one specific situation. It is not meant to be a standard for every mission. Give your order in words that make sense to your squad and that clearly explain to them what you want done.



"As I told you earlier, we are going to attack at 1500 hours today. This terrain model I've made represents the ground we've got to cover. This little hill is the platoon objective -- we are located right here. From what I was able to see on my recon with the platoon leader, it looks like the enemy has prepared trenches and bunkers here. Although I didn't see any armored vehicles, LT Smith said that the enemy has been identified as part of a motorized rifle unit. That means we have to be on the lookout for BMPs and maybe some tanks. Since he has had time to dig trenches, there are more than likely going to be minefields forward of the trenchlines.

"We are going to move from here to here mounted. Once we get to this ridgeline, we will dismount and attack the rest of the way on foot. When we get to the objective, 2d Squad will be attacking on our left and 3d Platoon will be attacking this ridgeline on our right. 1st Squad and the APCs will stay on this ridgeline where we dismount and will support us by fire.

"The objective is going to be hit with artillery and mortar fire just before we go in. The company TOWs and the tanks working with the company will support from back here.

"We've got to pick up another machinegun. PVT Miller, you'll carry it, go see the platoon sergeant when we finish here and he'll give it to you. Kramer, you keep the Dragon.

"Our mission is to attack the right side of this little hill and clear the trenches and bunkers between this stone fence and this old dead tree. We move out at 1500 hours.

"When we move out, the platoon is going to be using bounding overwatch and we are the bounding squad. With the platoon overwatching from this hill, we will move up this draw until we get to this patch of woods. I couldn't see much of these woods, so I'll decide once we get close if we have to dismount to secure it. As soon as the rest of the platoon moves up to us, we'll bound around to the left and up to this ridgeline. I could see it pretty clearly, and I don't think anything is up there. This is where we dismount. When the rest of the platoon has moved up and when 1st Squad and the carriers are in position to be able to fire on the objective, our maneuver team will move along this route and try to hit the objective from this flank. 3d Squad's maneuver team will be following us and will peel off to our left as soon as we make contact. If we run into a minefield, we will try to go around it. If we can't, our squad has the mission of clearing a lane.

"SGT Small, Kramer and the Dragon will stay with you. The platoon sergeant will be controlling the fires of the carrier teams, so take your instructions from him once I move out with the maneuver team. I know the platoon leader wants the .50s to fire, so plan to have Kramer dismount and get in a position where he can hit the objective area with Dragon fire.

"Kramer, unless the platoon sergeant gives you different instructions, your priority will be to engage any armored vehicles on our side of the objective. If you don't see any vehicles, then hit the bunkers. If we have a target for you, we will mark it with yellow smoke.

"After we dismount, we will move in two wedges. SGT Adams, you lead the first wedge. Holland, Tucker, and Miller will be with you. Barker and Lupo will stay with me. We will bound from the dismount point to the objective.

"If we have to clear a lane through a minefield, Tucker and Holland will be the breach team. Make sure you carry engineer tape, five blocks of C4, fuze ignitors, fuze, and blasting caps.

"When we get to the trenches, we'll operate in two-man buddy teams. SGT Adams, you and Miller are one team, Tucker and Holland are a team, and Barker and Lupo will be a team. Don't take any chances. Each of us will carry four grenades so we have plenty -- throw one around each corner you come to before you make the turn. Don't bunch up once we get inside the trench -- each buddy team stay far enough back so you can just see the team in front of you.

"Each man on the maneuver team except the two machinegunners carry a LAW. We may need them to bust the bunkers before we get to the trench.

"When we get to this stone wall we will stop, but we have to hold on to our trench in case the enemy counterattacks.

"SGT Adams, when we reach the wall, you and your men set up from there back about halfway down the trench; myself, Barker, and Lupo will take the rest.

"Lupo and Holland, make sure you draw some yellow smoke rounds for the M203s. We will use them to mark targets for the overwatch elements.

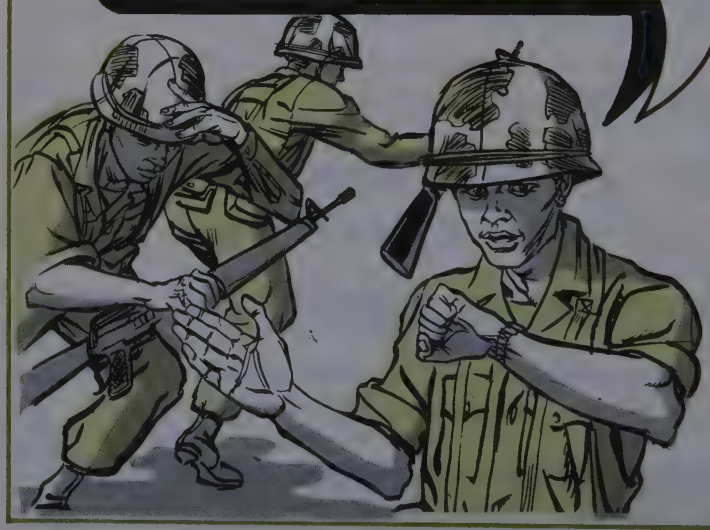
"We will take standard loads for the rest of our weapons.

"Chafin, the POL truck will be here around 1330, make sure you top off the carrier.

"If we take a casualty once we cross this little stream we are going to have to give him some quick first aid and continue moving. The medic will get to him as soon as possible. As soon as the trench is clear we will go back and police him up. The company aid track will come forward just as soon as the trenches are secured.

"In case I get hit, SGT Adams you take over. Our call sign is Tango 31.

"O.K., the time is now 1215 hours, I will inspect at 1415 hours. We have less than 3 hours before we take off, do any of you have any questions?" IF NOT, MOVE OUT!"



CHAPTER 7

# THE DEFENSE

## Section I. GENERAL

For the squad, the main purposes of defensive operations are to defeat an enemy attack and to destroy the enemy force. Defensive operations may also be undertaken to hold critical terrain, to gain time, to wear down the enemy, or for other such reasons. Both the mech and light infantry squad support the overall defensive mission by accomplishing tasks or missions assigned to them by the platoon leader. However, defensive tasks may vary between mechanized and light infantry squads.

**Mechanized infantry** habitually fights as a member of a combined arms team. The team consists of infantry, tanks, and TOWs, supported by artillery and engineers. The combined arms team fights an **active defense.** The concept of the active defense is to wear down the enemy by confronting him time and time again from battle positions throughout the depth of the battle area. Defending platoons, company teams, and task forces maximize the effectiveness of their weapons and minimize their vulnerability by selection of positions and use of cover, concealment, and obstacles. TOWs are sited to exploit their long range and pinpoint accuracy. Tanks are sited to exploit their mobility, their lethal main armament with its high rate of fire, and their armor protection. It is primarily the fire of tanks and TOWs that is used to destroy enemy armored attacks. **Mechanized infantry participates in the battle by**

- **destroying the enemy in designated sectors of fire with Dragon and machine-gun fire, thus supplementing the fires of TOWs and tanks.**
- **repelling enemy mounted attacks on avenues of approach that cannot be adequately covered with TOW and tank fire.**
- **repelling enemy dismounted attacks.**

- **protecting the TOWs and tanks, when necessary, from enemy infantry, especially during periods of limited visibility.**

- **locating the enemy through the use of OPs, LPs, patrols, and ambushes.**

- **constructing obstacles to slow, stop, or canalize the enemy.**

Active defensive operations involve rapid and frequent movement. Mechanized infantry squads, on moving into a battle position, must be able to defend it, shoot into an assigned area from it, or perform security missions around it within minutes of their arrival. **To do this mechanized infantry squads must**

- **make maximum use of the mobility and firepower of the APC.**

- **have well developed SOPs so that occupation of a position triggers a series of almost automatic actions on the part of the squad.**

**Light infantry** normally fights in terrain restrictive to employment of tanks and APCs -- often with little or no tank support. Although light infantry must be ready to rapidly move and accomplish new missions, it normally is given more time to dig in and otherwise prepare to meet an enemy attack. Since it has relatively less protection, mobility, and firepower than mechanized infantry, it must fight from prepared positions. In the defense, its primary role involves repelling enemy assaults with close-range fires; it is less suited to fighting a longer range battle. In addition, it will frequently be called on to conduct raids, ambushes, and patrols; position OPs and LPs; and construct obstacles.

This chapter will go into detail in showing how mechanized and light infantry squads conduct missions of destroying enemy in designated sectors of fire, repelling enemy assaults, and protecting tanks and TOWs. The ways mechanized infantry or light infantry squads construct obstacles are discussed in chapter 9. The techniques associated with employing OPs, LPs, patrols, and ambushes are shown in chapter 8. Withdrawals are covered in section IV.

## Section II
# MECHANIZED INFANTRY

Mechanized infantry defensive combat is based on the full integration of the squad APC into the battle. The firepower and mobility of the APC are used to the fullest extent possible to accomplish assigned missions.

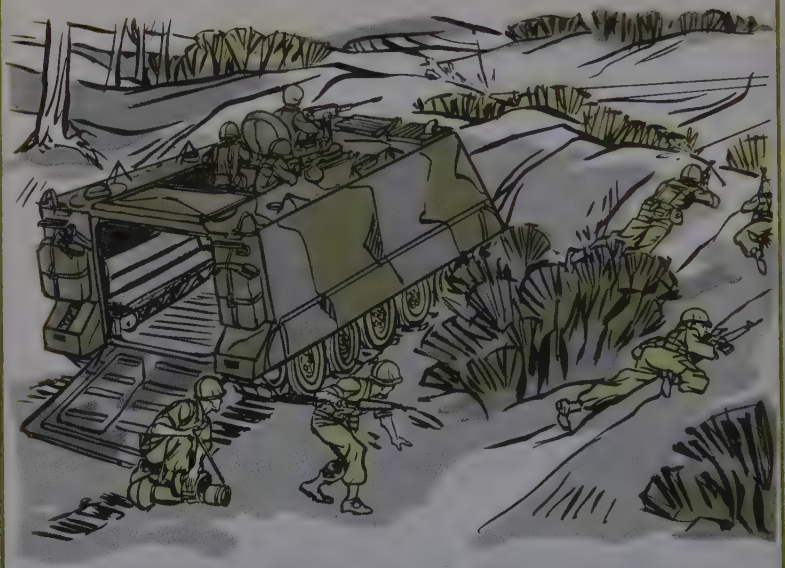
## METHODS OF EMPLOYING THE MECHANIZED SQUAD

Mechanized infantry squads may perform defensive missions

- **with their APC.**
- **supported by APCs which are not under the squad leader's control.**
- **not supported by APCs.**

The method used is directed by the platoon leader.

## MECHANIZED INFANTRY SQUAD WITH ITS APC



In this case, the entire squad may fight mounted on the carrier or part of the squad may dismount and operate near the carrier.

**The entire squad may remain mounted when**

**sufficient firepower can be employed from the carrier to accomplish the assigned mission.**

**increased local security or observation is not needed.**

- **the squad needs the protection of the APC's armor and will not have time to prepare even hasty fighting positions.**

- **the squad is required to move on such short notice that dismounting personnel would not allow the squad to move fast enough.**

However, normally some men from the squad will dismount close to the APC to increase the firepower, observation, and the security of the squad. **The squad leader will determine how many men to dismount, depending on**

- **how much the firepower and observation must be increased to accomplish the squad's mission and protect the APC (more men on the ground means more men able to shoot and secure the APC).**

- **the squad's need to move quickly (generally the more men dismounted the slower it will be to remount the carrier and move).**

- **the cover and concealment available to the APC.**

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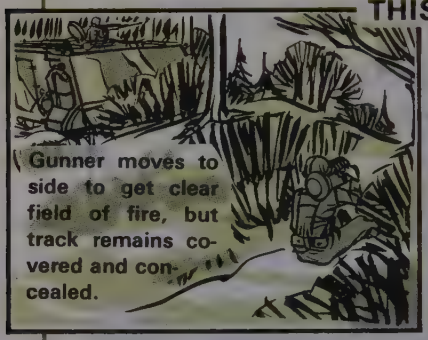


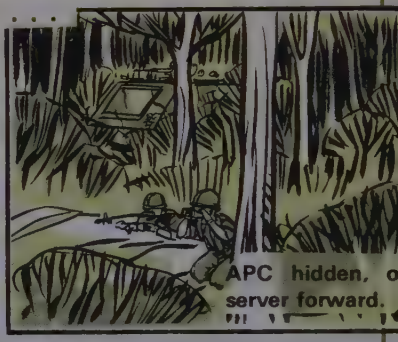


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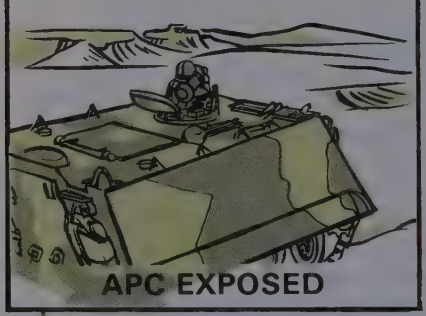

In both above cases where things were done correctly, the use of dismounted elements in the vicinity of the carrier has reduced exposure of the carrier. This does not mean to always keep the carrier in a "hide" position ( a completely covered and concealed position from which the vehicle moves to a firing position). The carrier represents the major portion of the squad's firepower. It should always by used to full advantage. When covered and concealed APC firing positions are available, they should be used to gain full use of the carrier team.

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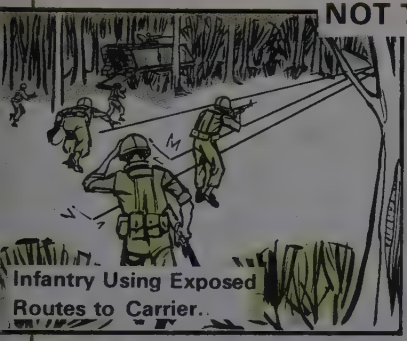
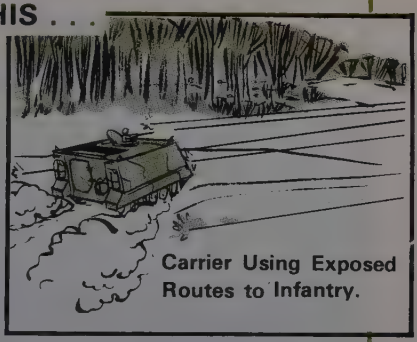


Infantry Using Exposed Routes to Carrier.



Carrier Using Exposed Routes to Infantry.

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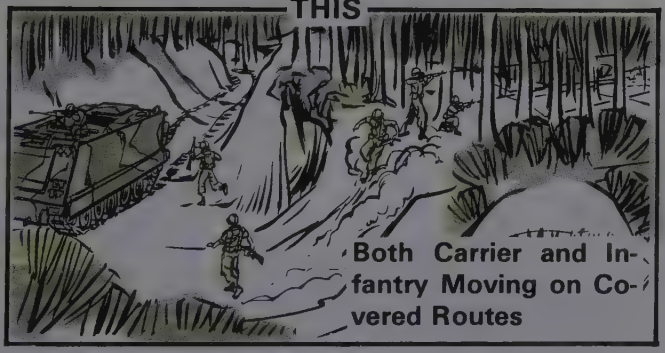


Both Carrier and Infantry Moving on Covered Routes

When portions of the squad dismount from the carrier, positions for both the carrier and dismounted personnel must be chosen and routes must be selected to allow the maneuver team to rejoin the carrier quickly, yet with the least possible exposure of either the carrier or the dismounted element.

If necessary to allow rapid remounting of the maneuver team, the carrier may move to a position which facilitates pickup.

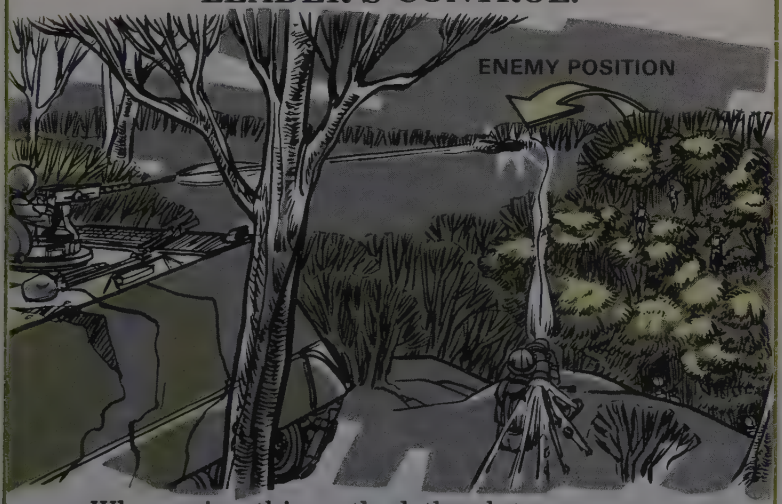
The carrier should be positioned to support the maneuver element by fire and to overwatch their movement back to the carrier.

Dismounted soldiers must make maximum use of natural cover – for often little time will be available to construct fighting positions. However, as time permits, fighting positions are constructed.

The squad leader may remain in the carrier or dismount -- whichever best allows him to control the squad.

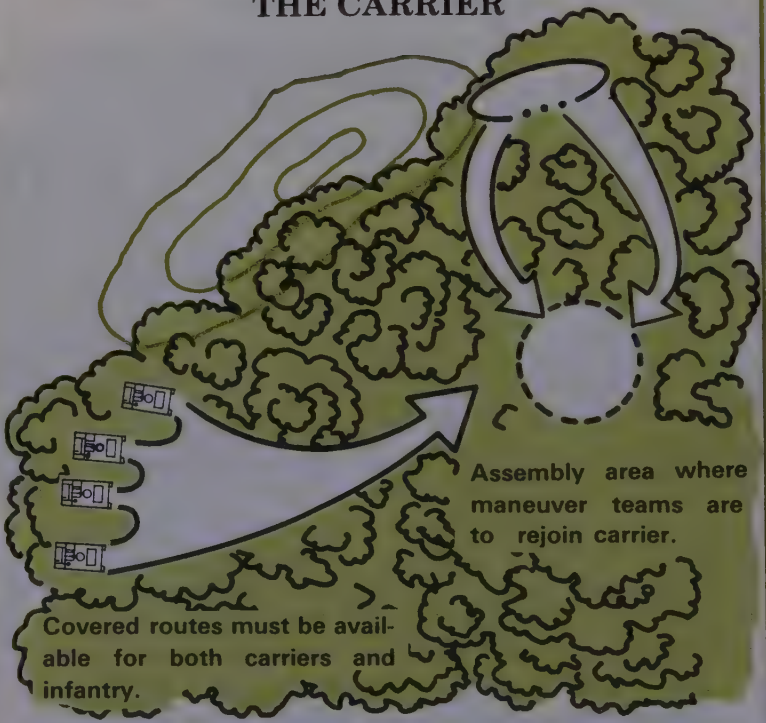
This method is often used in active operations when battle positions are hastily occupied and must be rapidly vacated, especially when the mission of the squad is to perform security missions or fire into assigned areas. It is also normally used when the squad is conducting operations independently or semi-independently of the platoon.

## MECHANIZED INFANTRY DISMOUNTS. CARRIER NOT UNDER SQUAD LEADER'S CONTROL.




When using this method, the platoon maneuver element dismounts from the carriers and sets up positions away from the carriers. In this case the APCs are usually under platoon control, not under the squad leader's control. The carriers may be initially forward of, to the flanks of, or behind the dismounted portion of the platoon; they move as required to support the platoon (-). The size and composition of the maneuver and carrier teams are designated by the platoon leader. This method allows for good positioning of both the carriers and dismounted infantry but can make rapid remounting of the carrier more difficult. It is normally used, terrain permitting, when a more determined defense of a piece of ground is required than could be accomplished using the first method.

## MECHANIZED INFANTRY SQUAD DISMOUNTS NOT SUPPORTED BY THE CARRIER


Assembly area where maneuver teams are to rejoin carrier.
Covered routes must be available for both carriers and infantry.

When using this method, the squad's maneuver team occupies a position -- normally as a part of the platoon maneuver element, but the carriers do not participate in the squad's fight because they are used elsewhere. Remounting the maneuver team is more difficult when using this method. So, when this method is used, the platoon leader will normally designate an assembly area where the maneuver elements will rejoin the APCs. Because

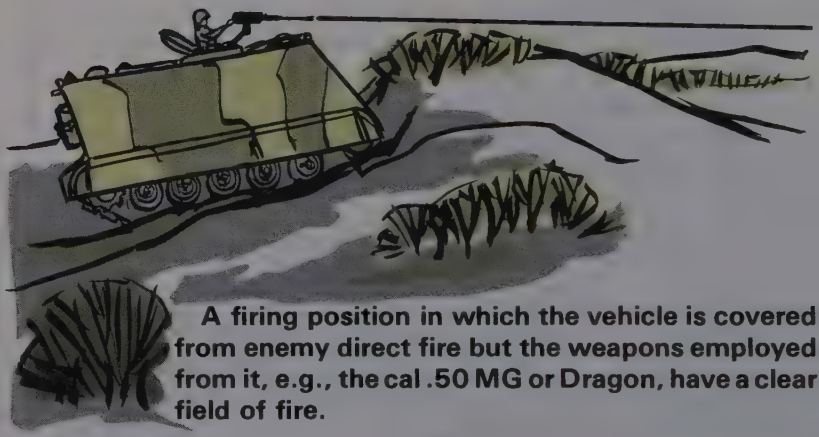
the carrier teams will be operating away from the platoon maneuver element, the squad leader must make sure all the equipment necessary to set up his position (mines, personal equipment, ammunition, etc.) is off loaded from the APC prior to the time the APC leaves.

This method is used when the platoon must occupy more than one position or when infantry must occupy positions that the APCs cannot support.

## APC POSITIONS

To make the most of their increased firepower, armor protection, and mobility, the platoon's APCs are always integrated into the defense. They are positioned to add depth and additional firepower to the defense. APCs must be positioned just like soldiers to maximize cover, concealment, and fields of fire.

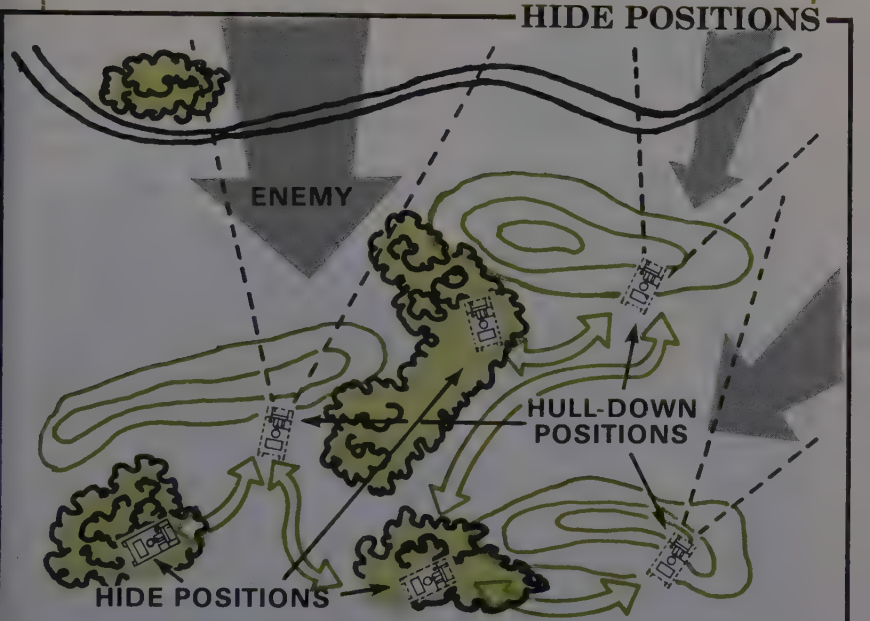
## HULL-DOWN POSITION



A firing position in which the vehicle is covered from enemy direct fire but the weapons employed from it, e.g., the cal .50 MG or Dragon, have a clear field of fire.

## HIDE POSITION

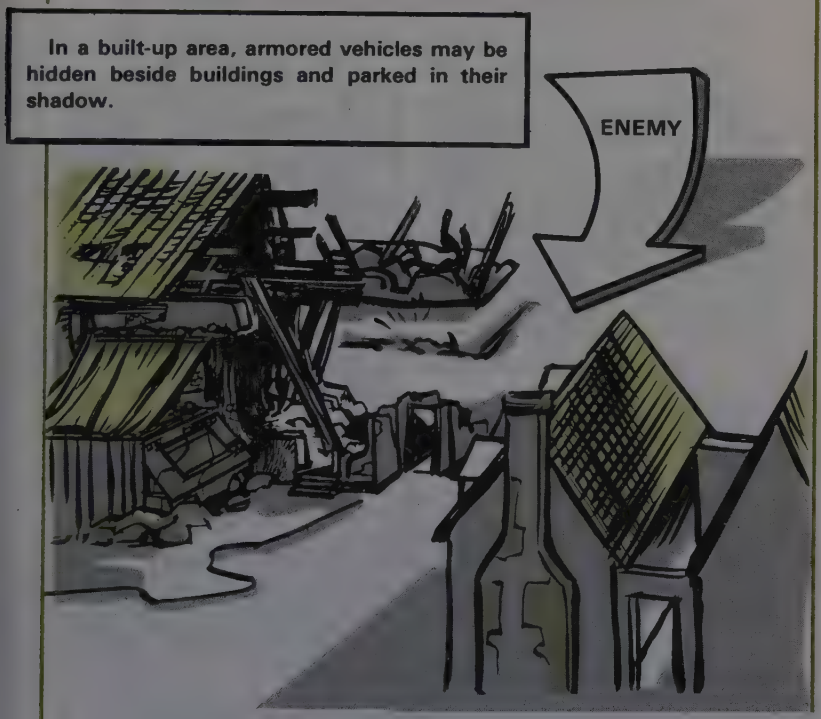
A completely covered and concealed position from which the vehicle moves to a hull-down position to shoot.




Positions for APCs are selected to maximize the firepower and mobility of the weapons on the carrier. They add flexibility to the defense by enabling the platoon leader to move firepower to the most critical point on the battlefield. The APC can occupy a hide position and then, when a target approaches, quickly move to the one of several firing positions from which it can best shoot that target. After firing, it may quickly move to an alternate or hide position to evade counterfire. Your platoon leader will select a hide position and several hull-down positions to cover each sector of fire.

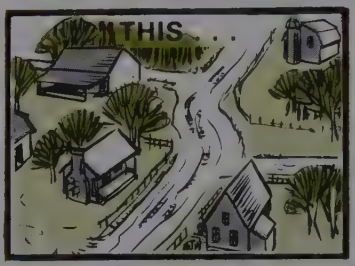
Routes are selected between positions which have cover for the vehicles while moving. If mechanized infantry must move, its armor and speed of movement protect it. Be careful not to destroy camouflage when you drive into an area. Pick vehicle positions before moving into the area, then move the vehicles into position. After concealing your vehicles, camouflage their tracks. These steps are required if your position is to BE UNDETECTED BY ENEMY AERIAL OBSERVATION.

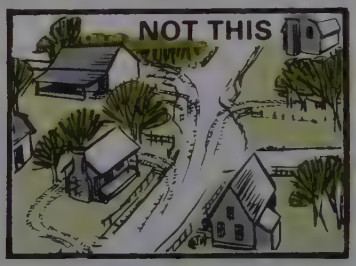
## CARRIER POSITIONS IN BUILT-UP AREA




In some cases you may want to hide the APC inside a building. When you do so, make sure you enter through the side of the building opposite the enemy. Before driving into a building make sure the floor will support the APC and the building won't collapse.

When moving into a built-up area that you will defend, keep the carriers on the road initially to avoid making tracks or tearing up trees, shrubs, and bushes, and to preserve the natural look.




Telltale tracks showing the presence of vehicles must be filled in or brushed over to restore the terrain to its natural look. You must be careful about making turns; if not, tracks will often leave black skid marks on roads.

## DESTROYING THE ENEMY WITH LONG-RANGE FIRE.

Often the squad or the platoon will have a mission of firing into an assigned area -- destroying as much of the enemy as possible. Normally the squad will fire into the area for a short period of time and then, usually on order of the platoon leader, move to new positions to avoid enemy return fire. **Typical enemy targets engaged using such tactics include --**

- **Tanks and other armored vehicles with Dragon fire (.50 caliber can destroy some enemy armored vehicles; see pages 15 to 19).**

- **Enemy dismounted infantry with machinegun fire. When the enemy runs into strong antitank defenses which he cannot bypass, he will normally dismount his infantry and have them attack with the tanks. When this happens, infantry machineguns will concentrate their fire on the enemy infantry while the team's tanks, TOWs, and Dragons concentrate on the enemy tanks.**

Machinegun fire can also be used to--

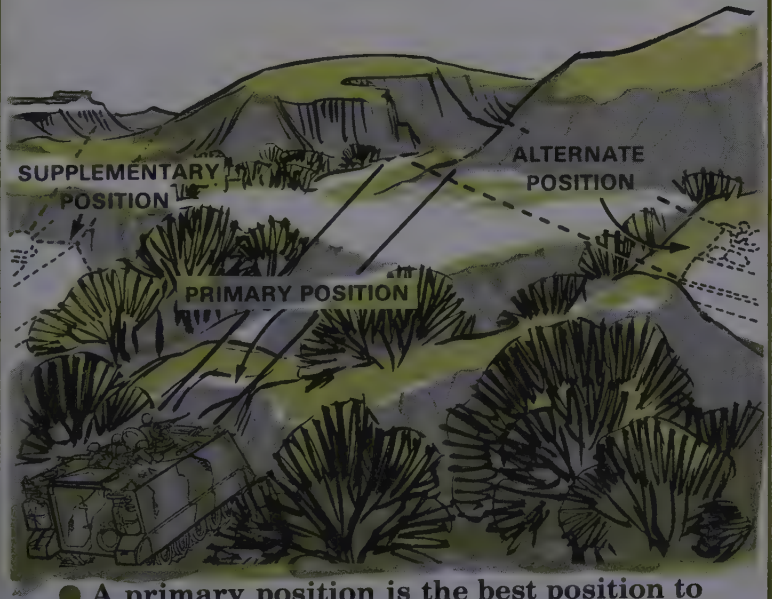
- **suppress enemy AT weapons.**
- **force tanks to button up.**

Dragons and machineguns firing long-range fire are normally employed on or near the APC to allow the squad to rapidly move to avoid enemy return fires. Keep in mind when firing the Dragon from the carrier that no other weapon may be fired at the same time.

To destroy the enemy with long-range fire, each squad is given sectors of fire. The squad may be assigned primary and secondary sectors of fire.

- **Primary sectors of fire are areas the weapon must cover at all times as its primary mission.**
- **Secondary sectors of fire are areas that must be covered on order.**

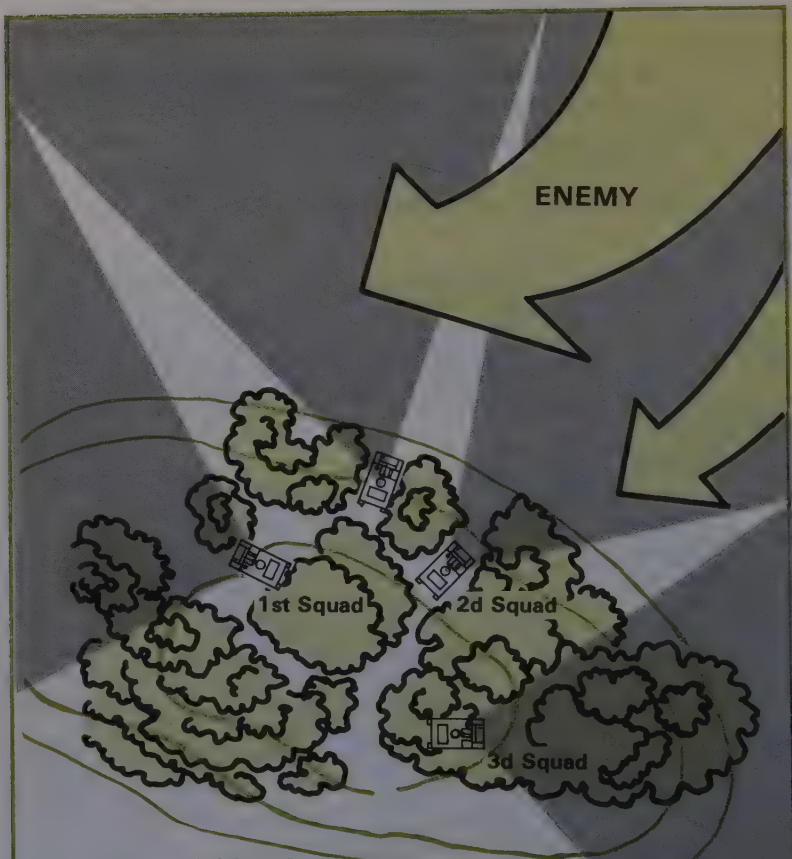
The squad leader can pick primary, alternate, and supplementary positions for his weapons. The APC's general position is selected by the platoon leader. Primary, alternate, and supplementary positions may be assigned for each carrier.




- **A primary position is the best position to cover a primary sector of fire.**

- **An alternate position is another position that allows a weapon to cover the same area that is covered from its primary position.**

- **A supplementary position is one which allows a weapon to cover a sector of fire which cannot be covered from the primary position.**

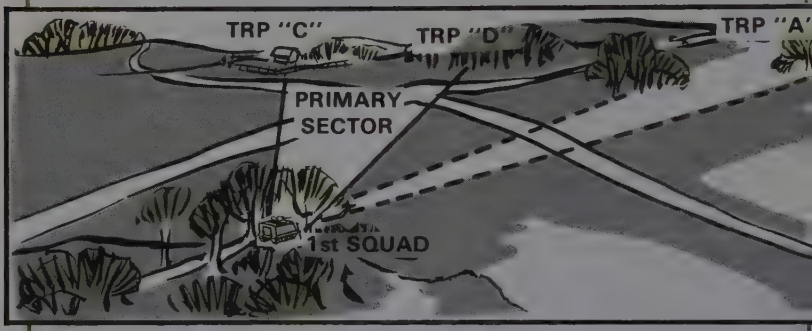



To quickly designate sectors of fire when initially occupying positions, often there is a platoon SOP based on the clock method: **"Direction of my APC is 12 o'clock. 1st Squad take 8 o'clock - 10 o'clock, I'll take 10 o'clock - 12 o'clock. 2d Squad take 12 o'clock - 2 o'clock. 3d Squad take 2 o'clock - 4 o'clock."**

The platoon leader modifies these sectors of fire based on the mission and terrain. The platoon leader will also designate target reference points (TRPs) within the platoon sector to allow him to control machinegun and Dragon fires. TRPs are readily identifiable terrain features which can be identified both on the ground and, if possible, on the map. In most cases the team or TF commander will also designate TRPs. Artillery and mortar fires are plotted on team and battalion TRPs but not on platoon TRPs. Team and TF TRPs are designated by numbers, platoon TRPs by letters.

Any TRP can be used to give fire commands to the squads. For example, 1st squad engage tanks to west of TRP A. 2d squad engage tanks to east of TRP A."

Sectors of fire can also be assigned using TRPs. For example, "1st Squad cover area between TRP C and D; be prepared to cover area vicinity of TRP A on order."

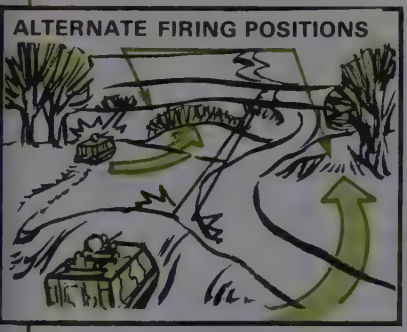


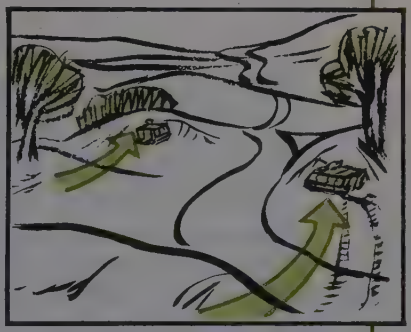

In the above case, the area between TRP C and D is the 1st Squad's primary sector of fire. The area vicinity of TRP A is a secondary sector of fire.

Each squad leader selects exact positions for the APC. When required, Dragons, machineguns, and other weapons are dismounted near the carrier to increase the amount of fire and observation of the squad or to protect the carrier. The squad leader may use the hide position technique when concealed firing positions are not available. When covered APC positions are not available, the squad sector will normally be covered by dismounted weapons.

Positions for carriers must have covered withdrawal routes to allow rapid movement of the APC.

If alternate positions are not designated by the platoon leader, the squad leader will select alternate carrier positions that allow him to continue to cover his sector of fire.



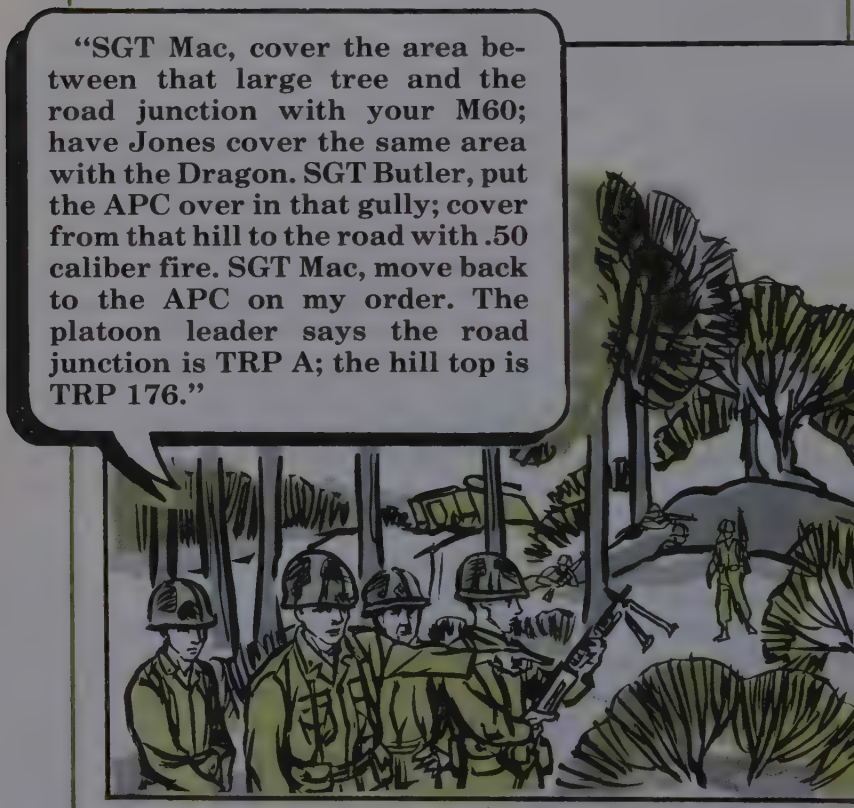



The squad leader or carrier team leader moves the carrier from primary to alternate firing positions when enemy fires on the primary position prevent the carrier based weapons from effectively shooting from the primary position or when movement to the alternate position is necessary to keep enemy fires from destroying the squad. The squad/carrier team leader makes this move at his own command, but keeps the platoon leader informed.

In order to follow firing and movement instructions from the platoon leader, each squad leader and team leader/gunner must know the location of all APC firing positions and TRPs assigned by the platoon leader. If there are more TRPs and firing positions than can be remembered, they must be plotted on a map or on a sector sketch.

## POSITIONING WEAPONS

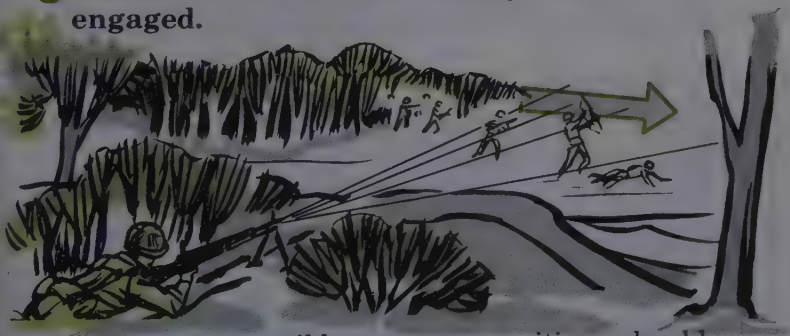
When occupying positions to engage the enemy with long-range fires, the squad leader selects primary and secondary sectors of fire and primary, alternate, and supplementary positions for the APC, machineguns, and Dragons of his squad. Sectors of fire are chosen to allow coverage of the sectors of fire assigned by the platoon leader.


"SGT Mac, cover the area between that large tree and the road junction with your M60; have Jones cover the same area with the Dragon. SGT Butler, put the APC over in that gully; cover from that hill to the road with .50 caliber fire. SGT Mac, move back to the APC on my order. The platoon leader says the road junction is TRP A; the hill top is TRP 176."

Ground firing positions for both machine-guns and Dragons must provide --

- **cover, especially natural frontal cover.**

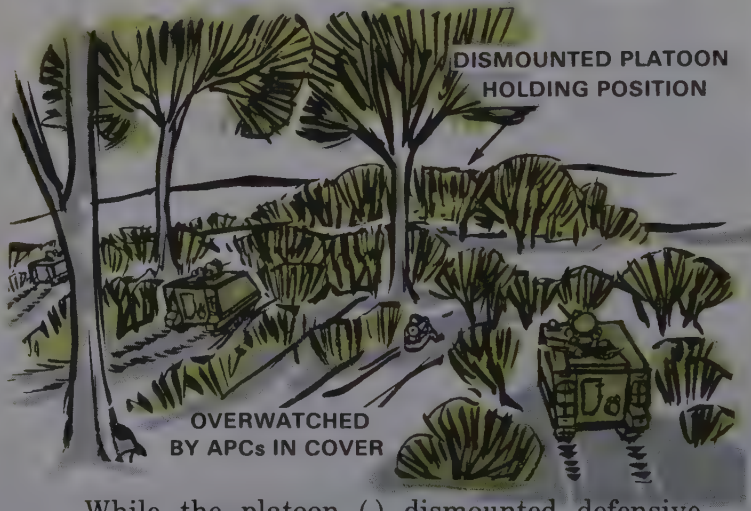
- **concealment -- a weapon that is spotted by the enemy will be destroyed or suppressed before it can fire.**
- **covered, concealed routes off the position to allow it to move to avoid enemy fire.**
- **fields of fire so the enemy can be engaged.**



Whenever possible, weapons positions should be selected to allow the weapons to engage the enemy from the flank.

## HOLDING A PIECE OF TERRAIN

When the platoon is required to hold a piece of terrain or defend a strongpoint, it will normally defend dismounted, supported by carriers or not. Usually the platoon will hold a position dismounted, supported or overwatched by the APC element under the platoon sergeant's control.

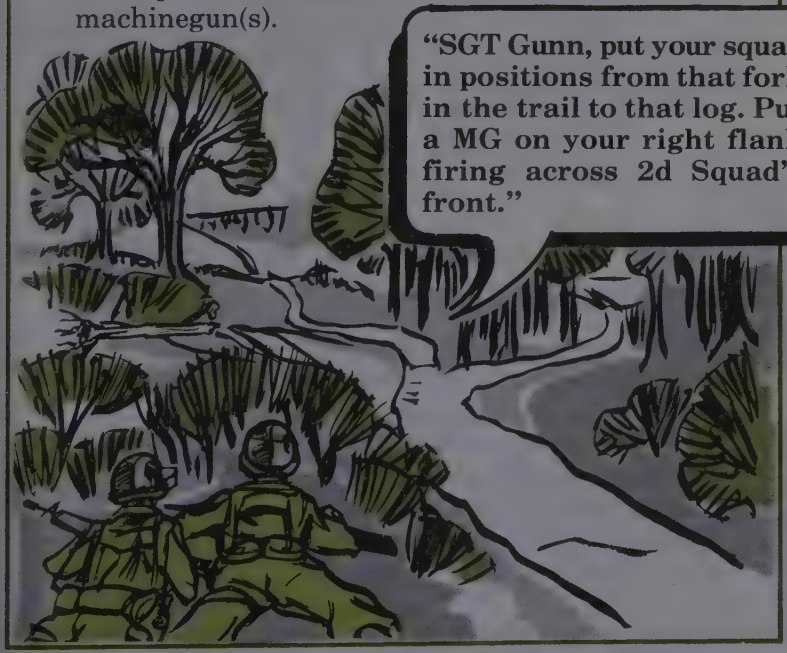



While the platoon (-) dismounted defensive position is set up in a similar manner to the defensive position of a light infantry platoon (see pages 210 to 211), the overriding differences are in the fires of the carrier and the greater number of MGs and other weapons.

For the squad leader, the key differences are that he will have fewer people and will normally have a machinegun(s) under his control. The platoon (-) defensive position will normally have most or all of the platoon's M60 machineguns.

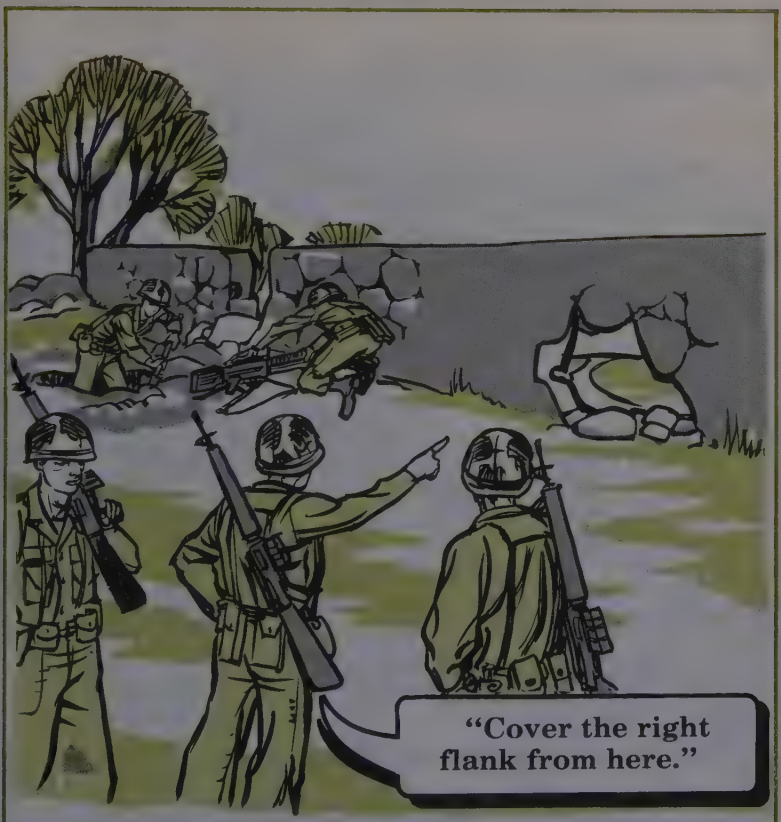
This gives the platoon the greatest possible defensive capability. The machineguns are the mechanized squad's key weapons for defense against a dismounted infantry assault. As machineguns present the greatest threat to enemy infantry, he will strive to find and destroy them. If he does, he will considerably reduce the squad's ability to defend.

When setting up the platoon (-) defensive position, the platoon leader will tell the squad leader how many machineguns to bring forward and give the squad leader the general location for the squad and sectors of fire for the squad's machinegun(s).


"SGT Gunn, put your squad in positions from that fork in the trail to that log. Put a MG on your right flank firing across 2d Squad's front."

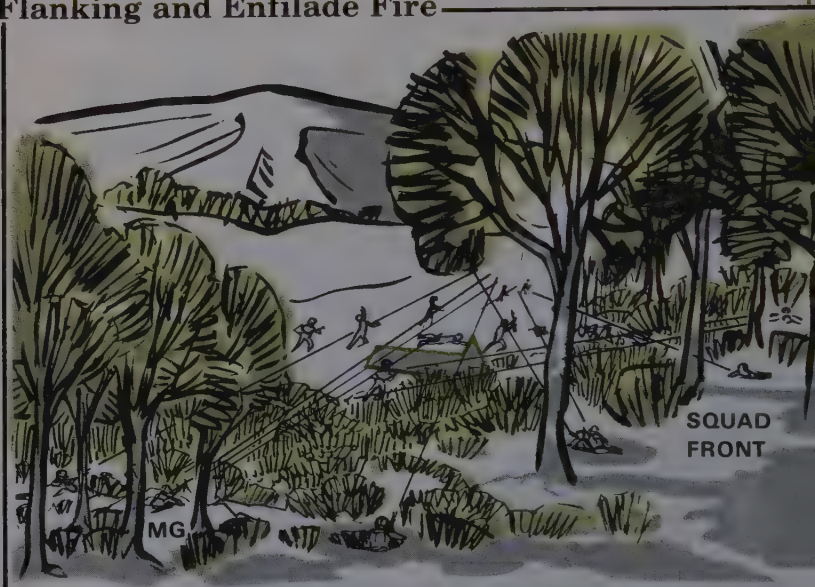
Based on this, the squad leader will pick locations for the squad machinegun(s).

The platoon leader will then check out these positions, either approving them or modifying them as necessary to maximize their effectiveness. Once the platoon leader has selected the exact machinegun positions and sectors of fire, the squad leader will begin digging them in and positioning the rest of the squad to protect the machineguns and cover areas the machinegun can't cover with fire.




In the defense, the machineguns are normally used on tripods and should be positioned so they can have sectors of fire across the squad's front and interlocking fire with other squads. Machinegun positions should have frontal cover. Machineguns are most effective when using enfilade fire that is fired down the line of the enemy assault formation.

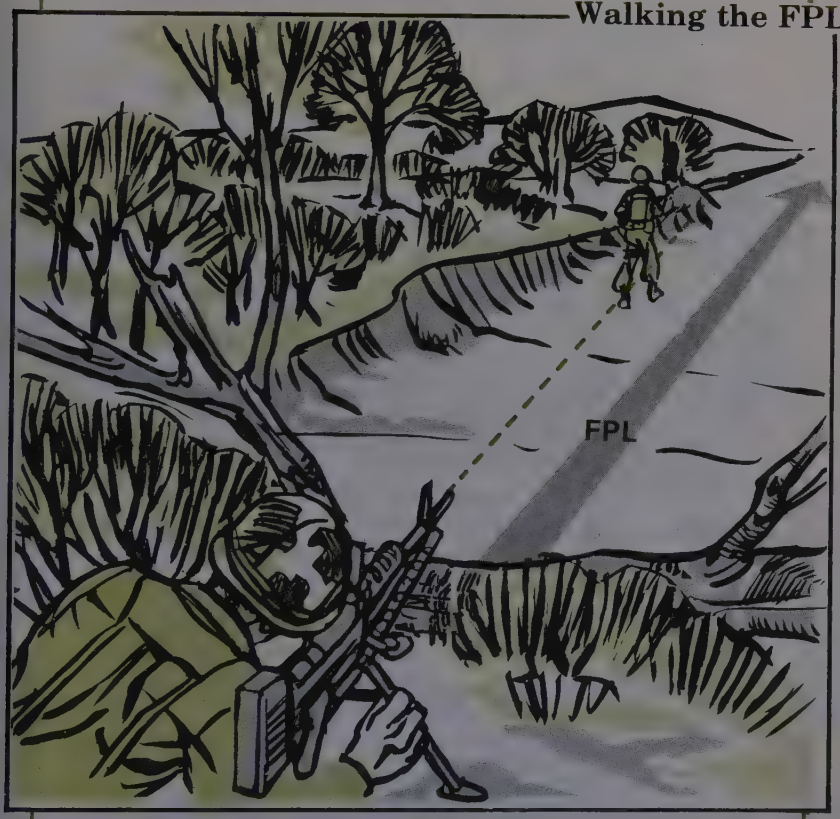
## Flanking and Enfilade Fire




**This flanking and enfilade fire should surprise the enemy by hitting him from an unexpected direction.**

Where terrain allows, MGs are assigned a final protective line. A final protective line (FPL) is a line of grazing fire across the unit's front. **Grazing fire** is fire which is no more than 1 meter above the ground (about hip high). Dead space along the FPL is determined by having a man walk the FPL. The gunner watches the man walking down the line and marks locations which cannot be covered by grazing fire. Dead space is covered with obstacles, M203 fire, or Claymores.

## Walking the FPL




In some cases a machinegun may be assigned a principal direction of fire (PDF) rather than an FPL. This might happen when a gully or ditch leads into a position and the MG is positioned to fire directly down the approach rather than across the unit's front.

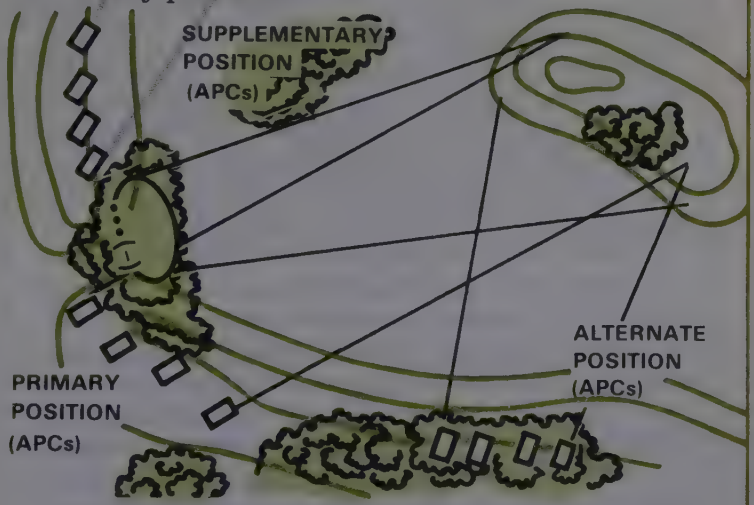
**A machinegun is always laid on its FPL or PDF unless engaging other targets.**

**All machineguns start firing their FPL or their PDF at the same time and on signal.**

Once the machineguns are sited, the squad leader then positions riflemen to protect the machineguns and engage areas not covered by machinegun fire. Obstacles and mines are emplaced, security established, and cover and concealment improved. How the maneuver team establishes a dismounted defensive position is discussed in detail in the next section.

APCs are normally used to support the defense of the platoon from positions forward, to the flank, or behind the dismounted platoon defensive position. The composition and tasks of the carrier element are usually specified by the platoon leader. It is normally controlled by the platoon sergeant or assistant platoon sergeant. The carrier team leader selects the exact position of the

APC based on the instructions of the platoon sergeant. The team leader moves the APC to alternate positions based on the need to avoid loss of the carrier or to evade effective enemy suppressive fire. Movement to supplementary positions to destroy the enemy is made at the direction of the platoon sergeant. Just as individual carriers may have alternate and supplementary positions, the platoon overwatch element may also have alternate and supplementary positions.




Assembly areas for remounting are selected by the platoon leader. Covered, concealed routes to them are selected for the APC and the members of the maneuver team. The spot where the squad will remount should also provide cover. Each man must know where the remount point is and how to get to it.

## SECURING TANKS AND TOWs

The tanks and TOWs provide the major portion of the firepower directed at destroying the enemy's armored attack. Since enemy will attack strong antitank defenses with dismounted infantry, the tanks and TOWs must be protected from these dismounted attacks if the defense is to succeed. This security of tanks and TOWs is a major responsibility of mechanized infantry in the defense, particularly during periods of reduced visibility or in close terrain. To do this, the infantry may set up in platoons or by squads in positions on likely infantry routes into the battle position. The infantry must be able to detect and stop enemy infiltration and dismounted attack until other forces can react to it. Often the squad and platoon will be spread out with large distances between positions. Open areas are covered by observation and fire or by the tank and TOW crews; close terrain is covered by infantry positions.

The squad leader must coordinate with the TOWs and tanks in the area and find out where their firing positions and routes between firing positions are, to avoid putting infantry positions in locations where they would be run over or interfere with the firing of these heavy antitank weapons.

The carrier team will be used as one of the positions when terrain permits. As always, covered routes back to the carrier for the dismounted infantry are required.

## Section III

# LIGHT INFANTRY

The light infantry squad's basic defensive mission is repelling an enemy assault using close-in defensive fire. This section will first describe how the squad does this. It will also describe how a squad covers an assigned area with fire from attached weapons. The techniques used for securing tanks and TOWs are the same as for mechanized infantry.

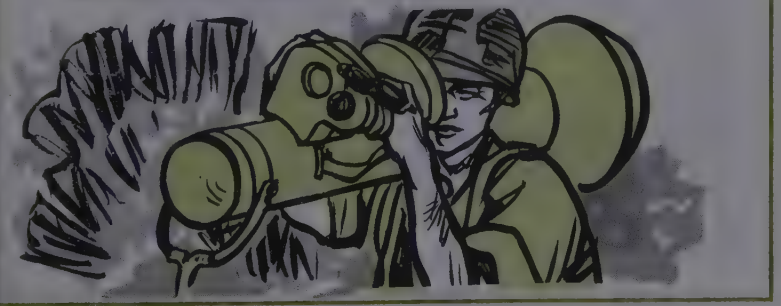
## HOLDING A PIECE OF GROUND

### HOW SQUAD AND PLATOON DEFENSIVE POSITIONS ARE ORGANIZED

The platoon leader normally selects the exact locations for his machineguns and Dragons. The platoon's defense depends on the proper positioning of these key weapons. MG positions must be able to cover assigned sectors of fire, principal directions of fire (PDF), or final protective lines (FPL). Dragons must be able to destroy tanks in assigned sectors of fire. All positions must provide cover and concealment for these weapons before and during the battle.

If the enemy finds and destroys or suppresses the platoon's key weapons, HE DESTROYS THE PLATOON'S ABILITY TO DEFEND.

After selecting key weapons positions, the platoon leader assigns each rifle squad a sector which protects the key weapons, provides mutual support, and covers any gaps in the platoon's machinegun fires. He may designate the general locations and principal directions of fire for the squad's automatic rifles and grenade launchers. The rifle squads provide mutual support within the platoon by providing overlapping and interlocking observation and fire between weapons, fighting positions, and squads. This observation and fire must be sufficient to keep enemy soldiers from penetrating the position or isolating any part of the platoon.



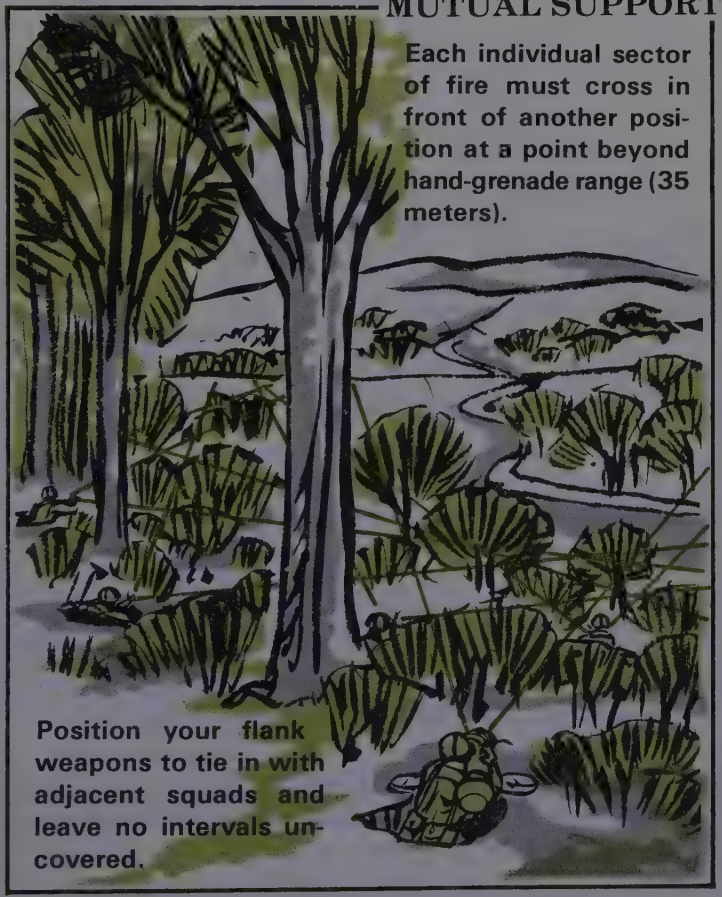
## DUTIES OF THE SQUAD LEADER

- Sites each squad member so that his position is well covered and concealed and the enemy will not know the squad's location until it opens fire. Normally two-man positions are selected.
- Assigns sectors of fire that allow each position to support the position on its left and right.
- Supervises the preparation of the squad's fighting positions and clearing fields of fire.
- Selects and prepares a position from which he can observe his squad's sector and control the squad.
- Insures that the completed squad position is completely concealed.
- Controls the squad during the defense. This includes identifying targets, controlling fires, shifting fires, and keeping the squad supplied.
- Reorganizes, as required, the squad's defense after repelling an enemy attack.

## SELECTING POSITIONS FOR MEN AND WEAPONS

Each position must provide mutual support, cover, concealment, fields of fire, and observation.

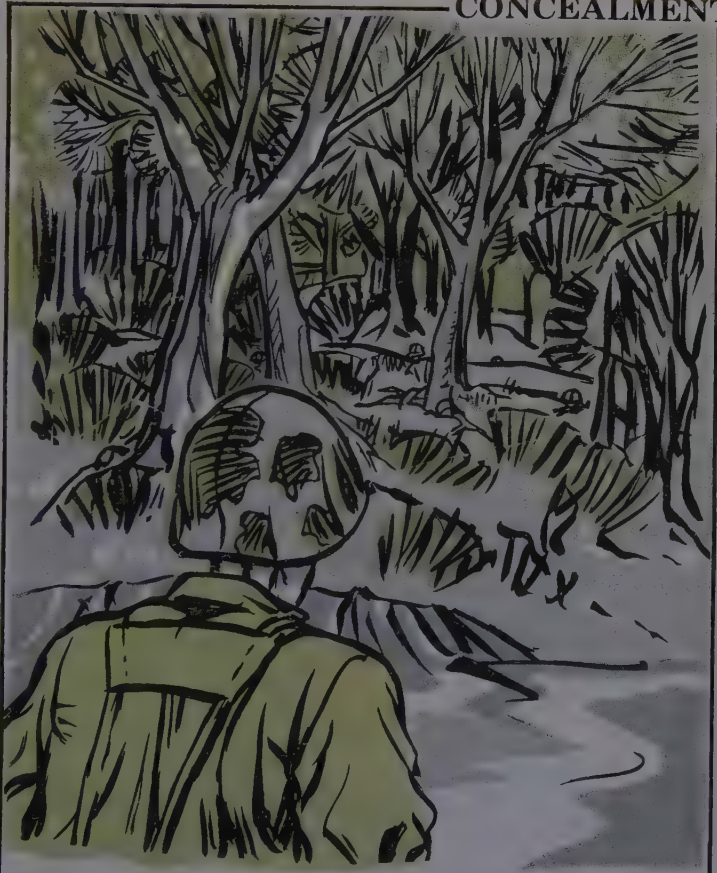
### MUTUAL SUPPORT


Each individual sector of fire must cross in front of another position at a point beyond hand-grenade range (35 meters).
Position your flank weapons to tie in with adjacent squads and leave no intervals uncovered.

## COVER

Each position should be located to take advantage of natural frontal cover -- trees, mounds, stumps, etc. -- to blend in with the surrounding terrain. At least the equivalent of 18 inches of earth should be located between the soldier and the enemy. Frontal cover is important to allow a soldier to shoot without exposing his head to enemy fire from the front.

When natural cover is not sufficient, a frontal parapet is constructed to give enough frontal cover. To provide cover from indirect fire, a fighting position is constructed and improved in the way shown in appendix G.



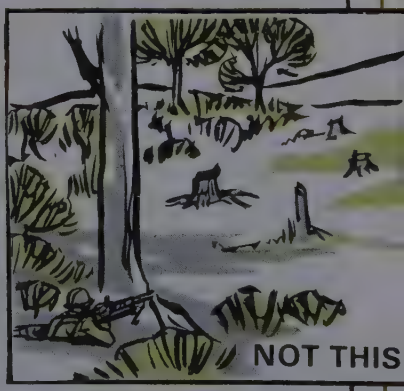
Positions must blend with surroundings to prevent detection from the front. They should be checked from the front to insure sufficient concealment.

## FIELDS OF FIRE

You must have good fields of fire to shoot into prescribed sectors of fire and to break up the enemy assaults. When fields of fire are not good, improve them by selectively clearing and cutting grass, crops, bushes, and trees; demolishing buildings; and cutting fire lanes through thick woods. Fire lanes should be close to the ground and hard to see.

**CLEARING TOO MUCH WILL WARN THE ENEMY**

**DO NOT DESTROY NATURAL CONCEALMENT**




Limiting stakes (or rocks or other material) are emplaced to correctly define the sector of fire and prohibit firing into an adjacent position.

## OBSERVATION

Each soldier must be able to observe far enough from his position to detect the enemy before he comes within his sector of fire. Observation for infantry positions should not be too far forward if this means that the enemy could see the soldier's position at ranges where the soldiers cannot effectively return fire. For this reason, fields of observation for rifle squad positions are normally limited to the effective range of weapons in the position. For longer range observation, the platoon leader or company/team commander will put out OPs.

## POSITIONING WEAPONS

### RIFLEMEN/AUTOMATIC RIFLEMEN.

The squad leader identifies dismounted avenues of approach into his squad sector. Typical dismounted approaches are wooded or brush areas, walls and fences, and draws and ravines. All of these will provide the attacker some cover. Stream beds and trails should also be considered as approaches, especially at night.

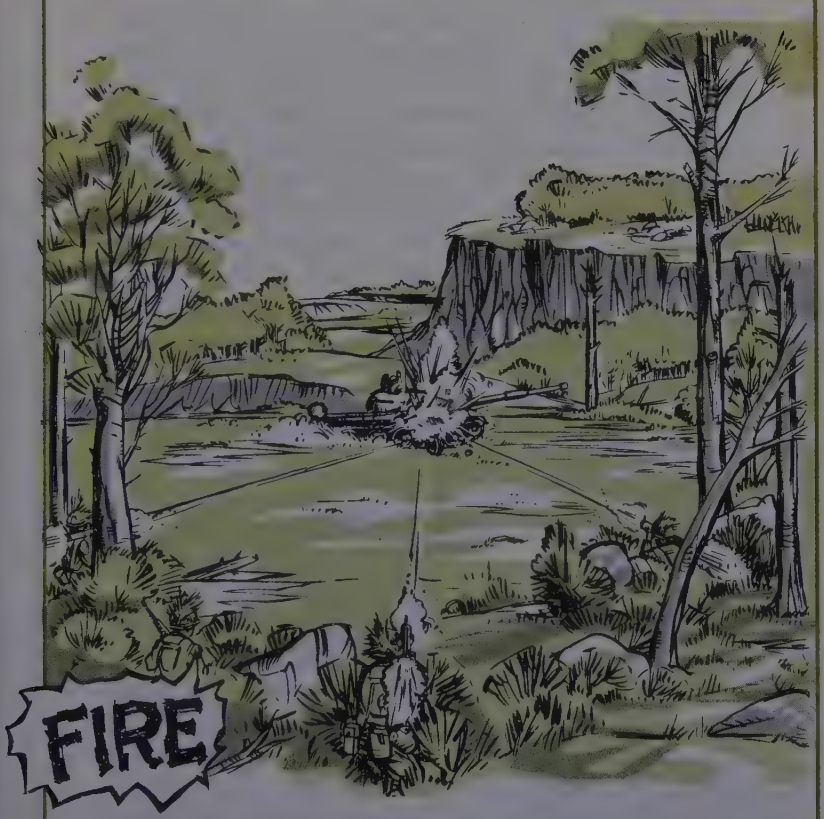
These are the areas that you should cover with your riflemen and automatic riflemen. If the platoon leader has already covered them with machinegun fire, find out from the gunner where the dead spaces are and cover them with rifle fire.

If there are no dead spaces, then assign riflemen a sector that will interlock and overlap the machinegun's sector and final protective fire to insure observation and fire throughout the squad's sector. During the defense, riflemen are used to man key weapons whose gunners have become casualties.

**GRENADIERS.** The squad leader positions grenadiers to cover the dead spaces in the automatic weapons' final protective fire. Grenadiers must be positioned to cover the complete squad sector so that what one grenadier cannot cover, the other can. The frontal parapet fighting position does not prohibit the grenadier from placing accurate preplanned fire to his front. Aiming stakes and notches cut into the fighting position's berm will enable him to fire without being exposed. Infantry dismounting from armored vehicles are excellent targets for the grenadiers. The 40mm HEDP round will penetrate 2 inches of steel. That means you can use this weapon on the sides, top, and rear of an APC.

**LAWs.** **LAWs** are the squad's primary antitank weapon. Each rifleman should have LAWs in his position. Sectors of fire for LAWs are the same as for the rifle. Massed fires at close range (100 meters or less) are used against the flanks of tanks and other armored vehicles attacking the squad's positions. For engagements at close ranges, the

squad leader will give the command to fire when the tank is within range and the LAW gunners can engage the flanks of the tank.

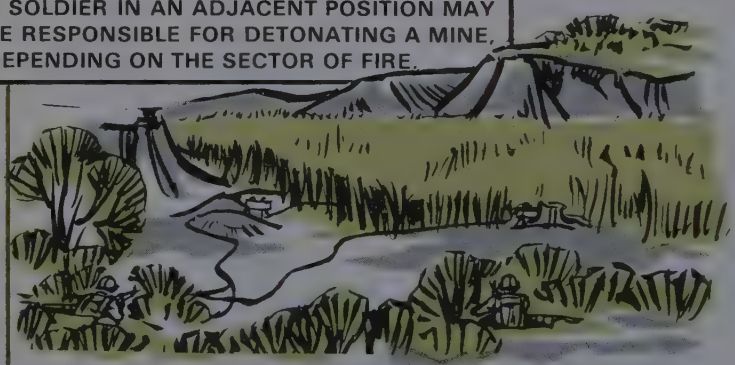



Normally volley fire is used for close-range engagements (see appendix D).

## ANTIPERSONNEL AND ANTITANK MINES

Insure that all enemy approaches into your position are adequately covered by fire. To cover any dead spaces that cannot be covered with 40mm grenades and to supplement the fire of your riflemen, use claymore and other antipersonnel mines. When command detonated, they are employed like any other weapon. A claymore must be fired by a man who is able to see its sector of fire. Aim the mine to maximize its effects. Establish an SOP for firing, e.g., soldiers shoot targets in their sectors with their individual weapons unless there are too many targets, in which case they use claymores.

A SOLDIER IN AN ADJACENT POSITION MAY BE RESPONSIBLE FOR DETONATING A MINE, DEPENDING ON THE SECTOR OF FIRE.



EMPLACE MINES WITH SOME PROTECTION FROM BACKBLAST.

DO NOT USE LOOSE DIRT OR ROCKS. BACKBLAST WILL CAUSE MISSILE EFFECT.

If more than one claymore covers the same sector, the squad leader must establish an SOP for firing sequence. Since there is only 100 feet of wire with the claymore, insure that the soldiers in adjacent positions are not in its danger area by placing either a sandbag or mound of dirt behind the mine, between it and the adjacent position, to deflect the blast. Firing wire should be buried approximately 6 inches to protect it from being cut from incoming indirect fires.

## CONCEAL MINES SO THEY WILL NOT BE DETECTED

When operating in an area where enemy armor is a threat, each squad should use antitank mines to provide close-in protection against armored assaults. These mines are placed where they can be covered by LAW fire on likely tank routes. The squad normally emplaces at least one mine per position, but more can be used depending on the vulnerability of the squad to armored attack. The M21 mine, with its relatively light weight and lethality, is the best type mine to use, but other antitank mines are also effective. When using mines in this manner, the squad must remove all the mines they emplace before leaving the position. (See chapter 9 for information on emplacing and removing standard US mines.)

## PREPARE YOUR OWN POSITION

You must select a position from which you can control the fires of your squad. If you have enough men, position yourself slightly behind the squad where you can observe and contact your squad.

If your squad's strength is reduced, or the terrain does not permit you to establish a position to the rear, you must man a forward position. In this case, you may have to construct a single position to be able to observe your squad sector. You must be able to maintain contact with your platoon and fire team leaders from any position you select. Look for a covered route that you can use to move back to the platoon leader's position.

## PRIORITIES OF TASKS

These are sometimes called priorities of work. They are specified by the company commander and platoon leader to insure that everyone works toward common goals to fully prepare the company's overall defense. They establish, usually by unit SOP, the priority in which the defensive tasks should be accomplished.

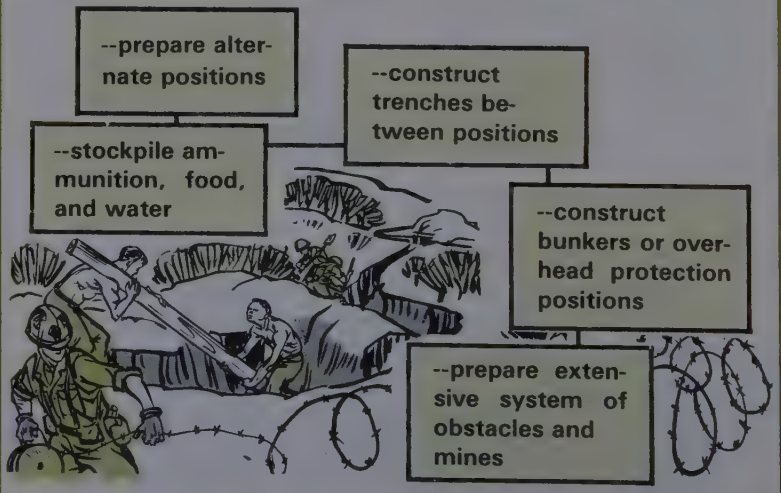
**Normally the first four tasks are:**

1. **Provide security. Unless the company or platoon has established local security, some members of the squad must provide security while the others work on preparing the squad's defensive position.**
2. **Position weapons and soldiers to cover the squad's sector with fire and to have as much natural cover and concealment as possible.**
3. **Clear fields of fire as much as necessary for the squad to cover its sector. Remember -- don't overclear.**
4. **Prepare positions for soldiers and weapons (see appendix G).**

Many of these tasks will be worked on and completed at the same time. Additional tasks such as emplacing obstacles, putting in wire, constructing alternate and supplementary positions, and laying wire communications are normally designated. If there is any change to the unit SOP, it will be given to you in the platoon leader's defensive order.

## STRONGPOINTS

In some cases a company can be ordered to develop a battle position as a strongpoint. This is an exceptional case, appropriate when the retention of the battle position is crucial to the overall defense because it gives a truly decisive advantage to the defender. A strongpoint is selected and developed so as to prevent the enemy from bypassing it, from being able to overrun it with tanks, from being able to destroy it with heavy fires, or from being able to overwhelm it with a dismounted attack. The squad in a strongpoint will be given additional time and materiel to prepare the position. The tasks of the squad when preparing a strongpoint are directed by the platoon leader and, given sufficient time to prepare, are similar to those for the preparation of any defensive position. Some things a squad leader normally does are:


--prepare alternate positions
--construct trenches between positions
--stockpile ammunition, food, and water
--construct bunkers or overhead protection positions
--prepare extensive system of obstacles and mines

**Some things to remember --**

- Alternate positions are occupied when enemy fire suppresses soldiers on their primary position. To do this, there must be covered routes or trenches between primary and alternate positions.

- Bunkers are prepared. Normally crew-served weapons are bunkered first and rifle positions last. Men from the squad will often be designated to assist weapons crews in this task. For all bunkers, it is extremely important to provide natural frontal cover and concealment or enemy tank and direct fire would easily knock them out. Men will fight from open positions, initially, withdrawing to bunkers only when forced to do so by enemy fire. The construction of trenches and bunkers is discussed in appendix G.

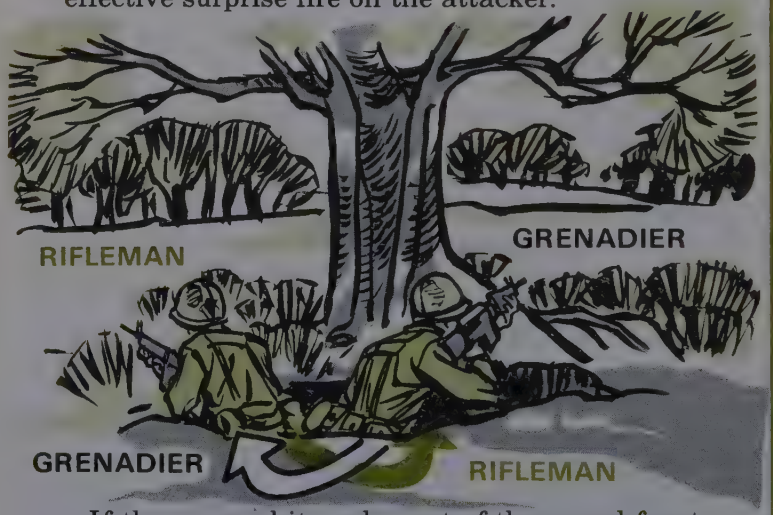
## CONDUCT OF THE DEFENSE

An enemy attack may be dismounted, mounted, or a combination of both. It will be preceded by heavy indirect and direct fires on your positions.

As soon as the artillery and mortar fires lift or shift off your position, every man must be ready to shoot, for the enemy follows right behind this artillery preparation.

## DEFENDING AGAINST INFANTRY

When enemy infantry attacks, hold small arms fire until he comes within effective rifle range (200 meters) or until he reaches a spot on the ground, such as a road, open area, or a stream bank designated by the platoon leader as a fire-at-will line. Tell your men to open fire when the enemy reaches that line. This will allow you to place effective surprise fire on the attacker.




If the enemy hits only part of the squad front, the unengaged automatic riflemen and grenadiers may change positions with riflemen to be able to fire at the enemy.

As the enemy continues to move closer, the volume and rate of fire are increased to stop the attack before it reaches your position.

## USE OF FPFs

When the signal for the FPF is given, the machineguns shift their fire to their FPLs and the FO calls for those indirect fire FPFs plotted in support of your platoon's position.

If the situation warrants, the platoon leader may call for indirect fire within the platoon's positions. When the enemy backs off, relentlessly continue to shoot at him until ordered to cease fire.

## DEFENDING AGAINST AN ENEMY ARMORED ATTACK

Infantry normally defends against an armored enemy in terrain which restricts or limits the mobility and firepower of the tank. In such terrain,

**SKILLFUL, AGGRESSIVE INFANTRY USING ANY OF THE AVAILABLE ANTITANK WEAPONS FROM THE SECURITY AND PROTECTION OF COVER AND CONCEALMENT STILL HAVE THE EDGE ON HALF-BLINDED BOXED-IN ARMORED VEHICLE CREWS.**

Riflemen can shoot at exposed crew members and force them to close their hatches. However, small arms fire is primarily directed at enemy infantry accompanying the tanks. If our infantry can stop the enemy infantry, the tanks will become easy prey for our antitank weapons.

Unless the squad has a Dragon attached to it, the LAW is the primary squad weapon used to stop enemy armored vehicles. The squad leader controls the fire of these weapons.

**LAWs** are fired at enemy vehicles that close on the squad's position. Normally the squad leader will hold LAW fire until enemy tanks come close enough to be in the squad's protective minefields and close enough to insure hits and flanking engagements by LAW gunners. The squad leader will normally try to have his entire squad engage one enemy tank with surprise volley fire. When more than one tank comes at the squad, each fire team may engage a tank.

**M203s** are fired against the sides of enemy APCs and the sides and rear of tanks. As with the LAW, the M203 gunners should wait until the APC is close enough to be sure of hitting the target before firing.

Don't let the tanks running over your position shake you. Tanks are scary, but because they cannot see and are vulnerable up close, their accompanying infantry is a greater threat to you. Tanks cannot effectively attack you in your hole, but the infantry in the BMP or on foot will. Don't run away, that's when the tanks will kill you; stay and fight from your prepared positions. If the tanks pass over your position, shoot at their rear -- that's the best area for the LAWs to engage the tanks anyway.

## REORGANIZING THE DEFENSE

When an enemy assault is repelled, small unit leaders must prepare their men at once to meet a renewed assault. If the first attack was mounted, the next attack may be dismounted, supported by fire from tanks and carriers.

To prepare for the next attack, squad leaders must:

### REESTABLISH SECURITY

If the LP/OP withdrew to the defensive position, send them back out. If they did not get back to the platoon position, check their status. If there are casualties, you must replace them with other men. As soon as feasible, implement a sleep/alert plan.

### REDISTRIBUTE/RESUPPLY AMMUNITION

Squad leaders pass out remaining ammunition and equalize that which is left between men. Ammunition is taken from casualties and given to survivors. Take a quick inventory and request a resupply of ammunition if needed. Report ammunition status to the platoon leader.

### EVACUATE THE DEAD AND SERIOUSLY WOUNDED

Be sure that all sectors of fire are still covered and that casualties will not leave gaps in your defense. All positions must still be mutually supporting.

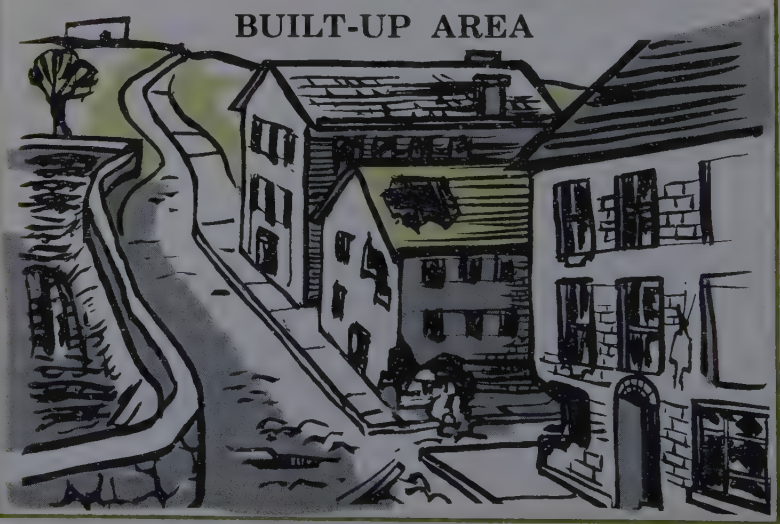
## REPLACE CAMOUFLAGE

When the enemy situation permits, remove wilted material and replace with fresh camouflage. Do not overcamouflage a position. If it was not found during the first assault, chances are it will not be found in the next try.

## REPLACE OBSTACLES

If enemy troops are far enough away, replace obstacles, mines, and early warning devices. This is a risky task, especially if the enemy has snipers. Your troops must be careful. Request smoke to cover their movement. You may have to replace obstacles during periods of limited visibility.

SITING POSITIONS IN A BUILT-UP AREA



Villages and towns constitute an obstacle for the attacker. Your squad may fit into an overall plan that is designed to force the enemy to bypass the town and move into kill zones or endure a difficult and time-consuming house-to-house fight to root you out. In most cases your squad will be given one building to defend. Select positions with the same considerations that you do on the ground.

When a building is selected for defense, pick locations in the building from which you can place rifle and automatic weapons fire to cover routes the enemy can use to approach the building.

Most riflemen and automatic weapons are placed at ground level or as near it as possible to provide overhead protection and allow grazing fire down approaches.

However, some riflemen may be placed higher to place long-range fire on the enemy and fire into areas that would be dead space to ground or near ground level weapons.

Dragons should be placed where they can shoot down streets and alleys. They may be positioned in, on top of, or beside buildings. The considerations for backblast are given in appendix D. Often these weapons will be fired from short ranges and then moved to avoid enemy return fire. This means withdrawal routes are important.

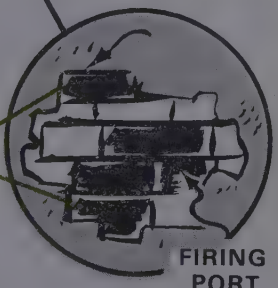
Employment of LAWs and M203s in built-up areas gives a good chance to engage enemy armored vehicles on the top or flank where armor is thinnest. Backblast is not a factor with the M203 but is with the LAW.

Firing ports for weapons should be cut into the sides of buildings rather than using doors and windows -- which tend to draw fire.

Make sure your troops don't stick their weapons through the walls or through their firing ports. If they do, they may give their positions away.

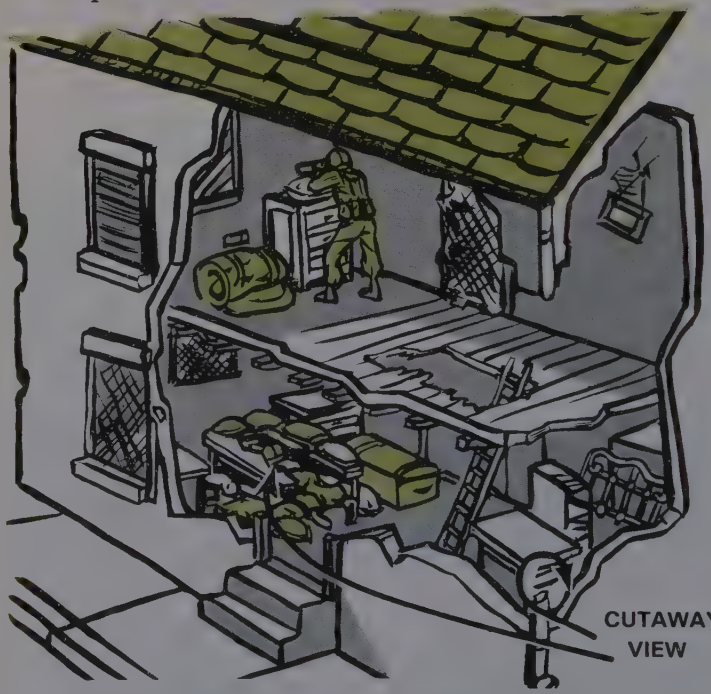
FIRING PORTS CAN BE LOCATED ANYWHERE: BEHIND CLIMBING PLANTS, BUSHES, OR THROUGH THE ROOF.

PAINT DARK PATCHES TO CONFUSE ENEMY AS TO LOCATION OF FIRING PORTS. PAINT DARK PATCHES ON HOUSES THAT YOU ARE NOT USING.




The firing ports must be placed in inconspicuous spots so that the enemy cannot observe them.

Cover inside of the building should be improved to provide more overhead and frontal cover.




Cut holes between rooms and floors for movement. This will allow your troops to move quickly by a covered and concealed route to numerous alternate and supplementary positions within a building. Request engineer support if necessary.

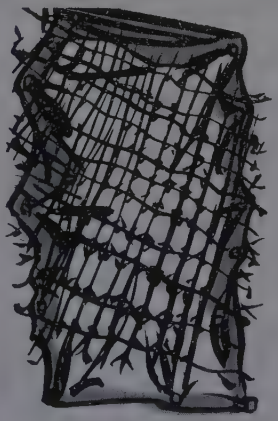
At the same time, barricade doors, halls, and stairs to prevent enemy movement into and inside of the house. Take down fire escapes.

## SOME OTHER THINGS TO REMEMBER

- Alter the outside appearance of the building as little as possible.
- Screen or block windows and other openings to prevent enemy observation into the building and use of hand grenades.

BOARDED

CHICKEN WIRE/BLANKET



- Remove as much combustible material as possible to limit the danger of fire. Turn off electricity and gas. Stockpile water and dirt to fight fires.
- Each soldier in the building should wear goggles to protect from dust and debris, as well as an armored vest and earplugs.

## DESTROYING THE ENEMY WITH LONG-RANGE FIRES

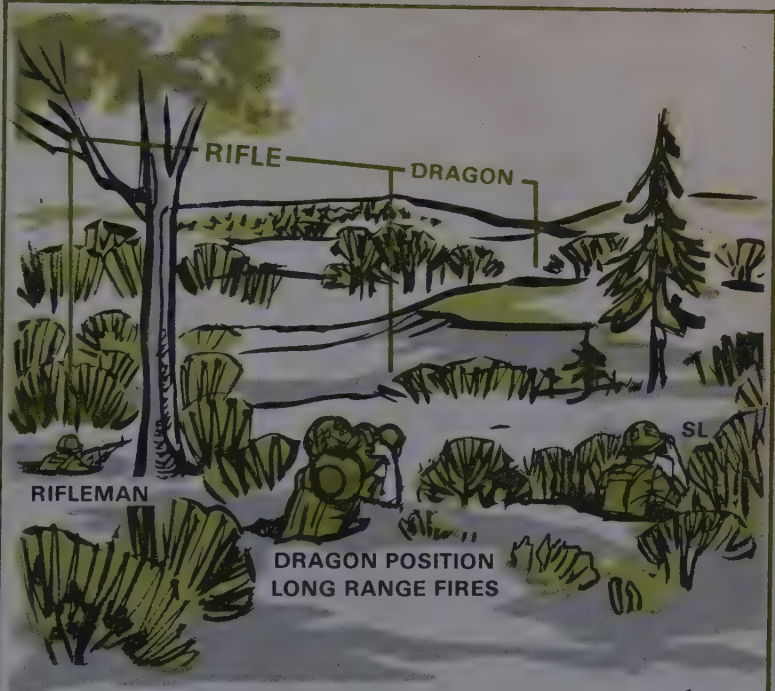
Normally the squad is given this mission only when machinegun crews and Dragons are attached to it. These weapons are positioned in or near the squad defense position to place fires into primary and secondary sectors of fire as directed by the platoon leader. Alternate and supplementary positions are prepared with covered routes between them. Weapons are moved by their crews to alternate positions when enemy fire suppresses primary positions.

**Machineguns** attached to the light infantry squad are used in the same manner as in the mechanized squad (see pages 200-206).

**Dragons.** Sectors of fire for Dragons under the squad's control are assigned by the platoon leader. The squad leader selects positions for the Dragon that allow coverage of the sectors of fire.

Dragons are normally positioned to engage attacking armored vehicles on the flank, to surprise the vehicle, and give it less time to traverse its gun and fire at the Dragon gunner.

Once the initial command to fire is given, Dragons fire at tanks which enter their primary sector of fire. If no armored vehicle is in a Dragon's primary sector of fire, then enemy vehicles in secondary sectors of fire are engaged without orders. The squad leader transmits firing instructions from the platoon leader to the Dragon gunner.




Dragon firing positions within the squad position should be selected to take advantage of the range of the weapon, but this should not cause the rest of the members of the squad to be exposed to enemy fires at ranges at which their own weapons are not effective. To do this, Dragons may be offset somewhat from the location of the riflemen of the squad; however, the Dragon gunner must be close enough to the squad so that he can be controlled by the squad leader and protected by the rest of the squad -- as above, where the Dragon is positioned to have suitable fields of fire, yet riflemen are not unnecessarily exposed.

## Section IV
# WITHDRAWALS

### GENERAL

A unit is in contact with the enemy when it can see the enemy and the enemy knows it is there and can shoot at it.

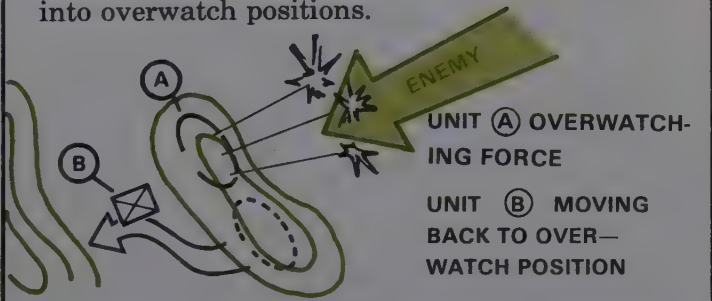
Withdrawing from the enemy is the act of breaking contact with the enemy (disengagement) and moving to a new location. If the enemy is attacking or is expected to attack during the withdrawal, a disengagement under pressure is conducted. However, if the commander considers that by using stealth he can disengage before the enemy can react, he could conduct a disengagement not under enemy pressure. A squad withdraws only when authorized to do so by the platoon leader.

Often, when given a defensive mission, the squad leader will be told to be prepared to withdraw. In such cases, he will position his soldiers and weapons in locations which readily allow covered and concealed movement away from the position. Routes to designated squad rally points and platoon assembly areas will be preselected and marked. All members of the squad must be shown and know the withdrawal routes.

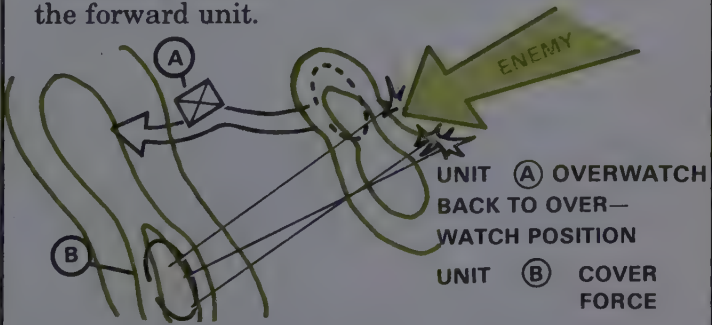
## DISENGAGING UNDER ENEMY PRESSURE

Fire and maneuver is the basic method for conducting a disengagement under pressure.

One unit acts as an overwatching force and holds off the enemy while other units move back into overwatch positions.




When the moving unit gets to the overwatch position, it in turn overwatches the movement of the forward unit.

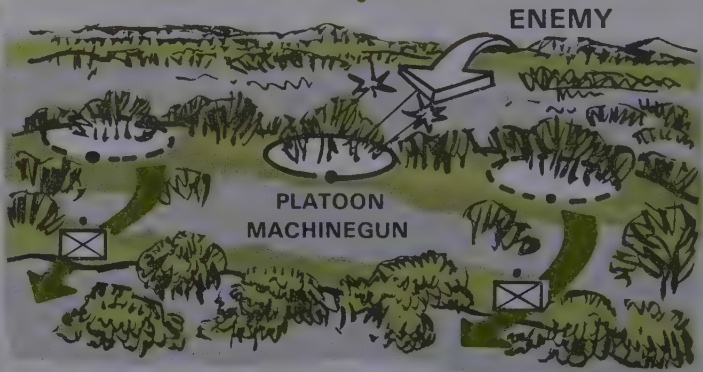



This leap-frogging process is repeated until contact with the enemy is broken or until the unit passes a higher level overwatching force.

When the light infantry platoon disengages, it may disengage **by squads** or may have squads disengage **by fire teams** or **by thinning the lines.** The platoon leader normally designates the method of disengagement, but in some situations he may let the squad leader make the decision. In all cases the squad leader will be told:

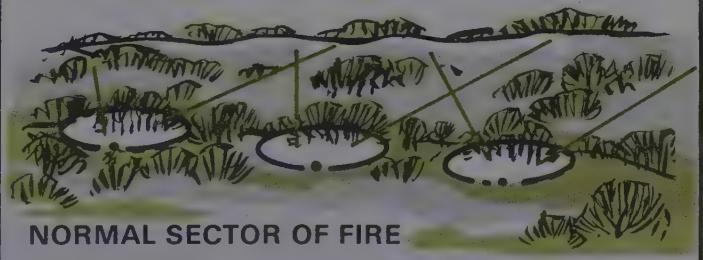
- the location to which the squad is to move.
- the general route over which to move.
- its mission on the next position.

## DISENGAGE BY SQUAD



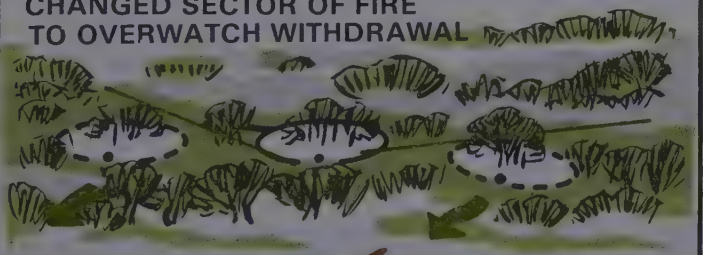

One squad, with a platoon machinegun attached, is left on position as an overwatching force and the rest of the platoon moves to the rear. The platoon leader determines when to use this technique.

When this happens, the squad in position must overwatch the entire platoon sector to overwatch the movement of the rest of the platoon. The rate of fire is increased and individual positions and sectors of fire are modified as necessary to insure better coverage of the platoon sector.



NORMAL SECTOR OF FIRE

CHANGED SECTOR OF FIRE
TO OVERWATCH WITHDRAWAL

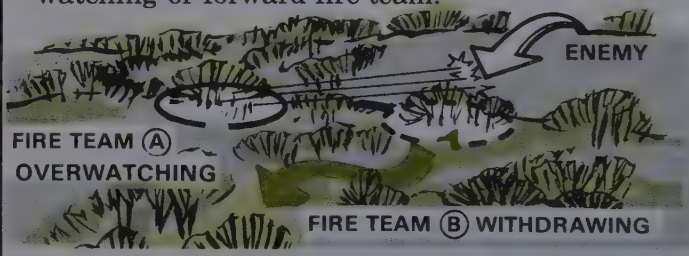


The overwatching force is disengaged when the remainder of the force is in position to overwatch its disengagement.

When using this method, if the enemy pursues the disengaging squads closely, they may still have to disengage by fire teams or by thinning the lines, fighting their way to the rear.

## DISENGAGING BY FIRE TEAMS

Using this method, the fire team best in a position to overwatch the squad's sector is left in position. The other fire team moves to a position to the rear designated by the squad leader. This location must be close enough to overwatch the forward fire team. The squad leader must tell the disengaging fire team leader where to move. The squad leader normally stays with the overwatching or forward fire team.



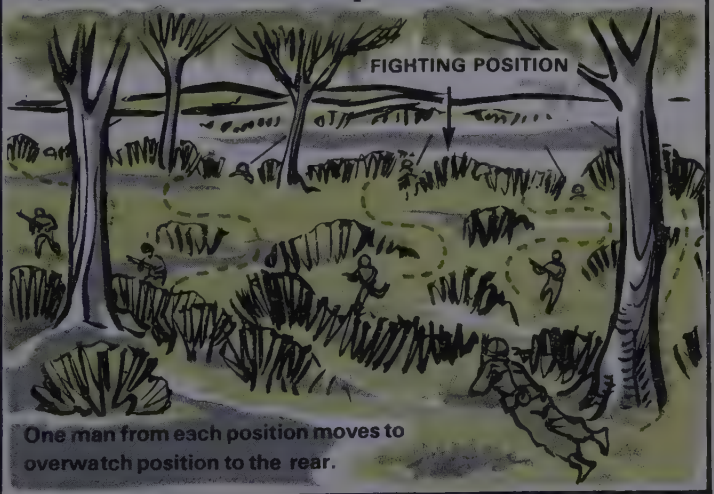

The forward fire team then withdraws when the rear fire team is in position to overwatch it.

The process of bounding back to the rear is continued until contact is broken. Once contact with the enemy is broken, the disengagement is completed and the squad moves using movement techniques (see pages 67-96).

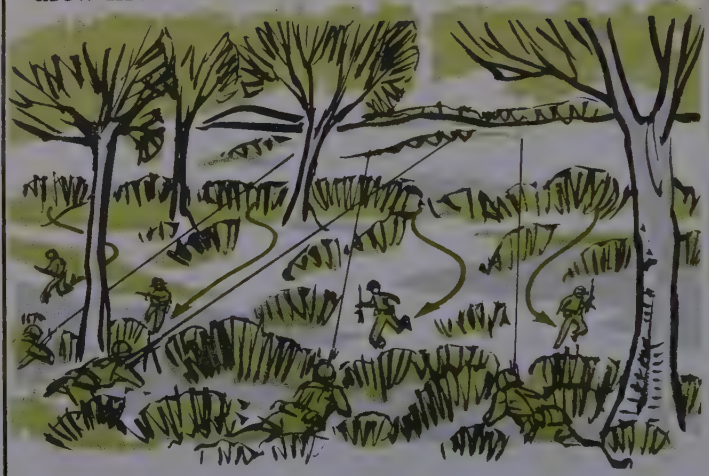
Withdrawal using this method has the advantage of simplicity in that the squad's normal organization and chain of command remain in effect.

## DISENGAGING BY THINNING THE LINES

In this method, selected men from each fire team (often one man from each position) are disengaged and move to overwatch positions to the rear.



When they are in position, the rest of the squad withdraws, overwatched by the men who withdrew first.



Automatic riflemen are moved either first or last, whichever best supports the movement of the squad. Depending on the armor threat, Dragons attached to the squad may move at any time. Remember, the Dragon has a 65-meter minimum arming range. The squad leader moves with the last element of his squad. If the enemy is attacking as one element disengages, men remaining in position increase their rate of fire to keep the enemy from overrunning the position. As with other methods of disengagement, this process is continued until contact is broken.

This method provides maximum firepower evenly across the squad position during the disengagement. It is more difficult to control than disengagement by fire team. It is often used when the squad may not withdraw by fire teams because one fire team cannot effectively overwatch the squad's sector due to limited visibility or close terrain.

## TECHNIQUES FOR BREAKING CONTACT

One of the hardest tasks that a squad can be required to do is to break contact with the enemy. To do this, you must obtain local fire superiority. Two techniques to break contact with the enemy are hand grenades or claymores. These supplement the fire from all of your squad's weapons.

- **Hand grenades. On a prearranged signal, every man will throw one hand grenade, then disengage by using fire and maneuver to the rear.**

- **Claymore mines. Place one or two claymores around your position to be used just for breaking contact. On your order, detonate these mines and then disengage by fire and maneuver.**

The active defense involves frequent movement from battle position to battle position, so preparations for disengagement are a part of most defensive missions. Squad rally points, where the maneuver team remounts the carrier; covered routes for both the infantry and carrier to the squad rally points; and routes from the rally points are all predesignated. The squad leader must make sure that every man knows the location of rally points and the routes to them.

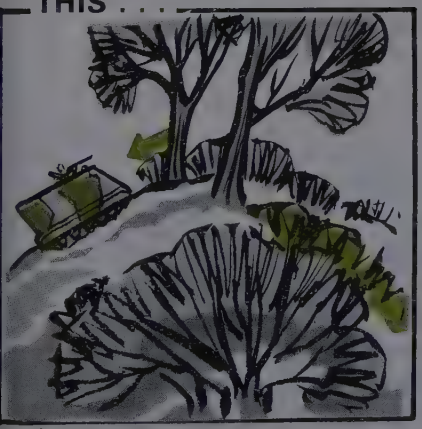
The tactics and techniques used by the mechanized infantry squad to disengage from the enemy can differ according to the method of employment of the squad, but some things generally apply in all cases.

## GENERAL RULES

- **Maximum use is made of the firepower of carrier teams to overwatch the withdrawal.**
- **Men normally mount the carrier through the combat access door (particularly when enemy indirect fire is falling in the area) to avoid destruction of personnel and equipment located in the carrier.**

- **Carriers back out of position, keeping some terrain feature between the carrier and the enemy.**

THIS . . .



. . . NOT THIS

At times an APC may be backed into position to speed movement out of the position. When you do this, the cargo hatch must be closed if the .50 cal machinegun is pointed to the rear.

- **Keep the .50 cal machinegun (not pointed over cargo hatch with men up) and other carrier weapons pointed in the direction of the enemy.**
- **Rapid movement is normally the key to successful disengagement. The squad leader must keep men moving quickly.**
- **When heavy indirect or small arms fire is hitting on the maneuver element location, but no enemy AT fire is coming on the position, the carrier should move as close to the maneuver team's position as possible to pick up the dismounted forces, in order to limit casualties.**

## SQUAD WITH ITS APC

When using this method of employment, the carrier team and maneuver team (or dismounted individuals) are normally located close together. Here the dismounted men simply run to the carrier and remount it, with the carrier team overwatching the movement with fire as necessary.

However, if the carrier and maneuver teams are separated, the squad leader can have the carrier move to the maneuver team, the maneuver team move to the carrier, or they can both move to a planned squad rally point. How the movement is done and the location of routes and the rally point is based on –

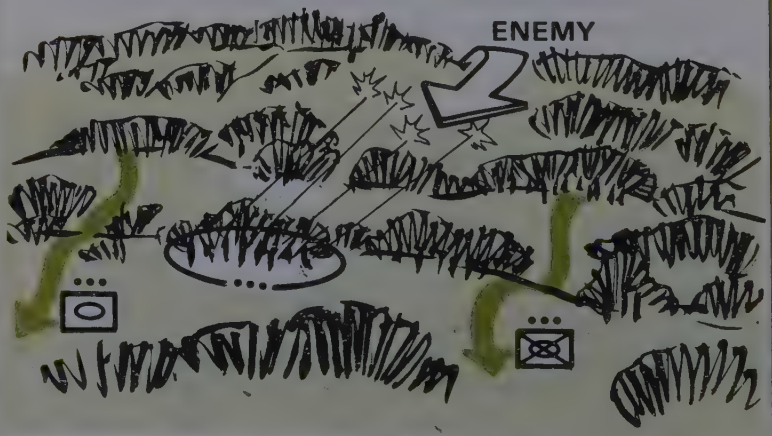
- **obtaining the best possible cover for both (generally men require less cover to move than does the APC).**
- **speeding movement (the carrier can normally move faster than men on foot).**
- **having one team in position to overwatch the other, especially if no other element is in position to overwatch (generally the carrier team with its greater firepower is best suited for overwatching the movement of the maneuver team).**

The maneuver element can return to the carrier by thinning the lines or by a movement as one team. Thinning the lines is often used when the enemy pressure is close and heavy or when the carrier team cannot overwatch the disengagement. Movement in one team is easier to control and is faster. It is often used when the carrier team is in a good position to overwatch the maneuver team and when the enemy is still at longer ranges.

## SQUAD SUPPORTED BY APC NOT UNDER ITS CONTROL or SQUAD NOT SUPPORTED BY APC

The maneuver element moves back to the platoon assembly area as directed by the platoon leader. Depending on the distance between the platoon defensive position and the assembly area, and on the amount of enemy pressure, the platoon may have to fight its way to the assembly area. It may do this be leapfrogging maneuver teams or by the squads thinning the lines. In either case, the platoon will leapfrog from overwatch position to overwatch position back to platoon assembly area.

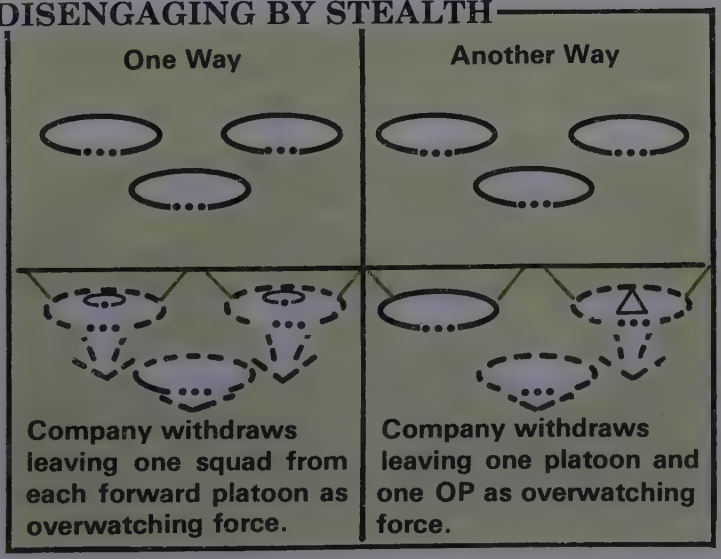
Once the maneuver team mounts the carrier, the platoon may move to overwatch the disengagement of other elements as shown here.



## DISENGAGING WHEN NOT UNDER ENEMY PRESSURE

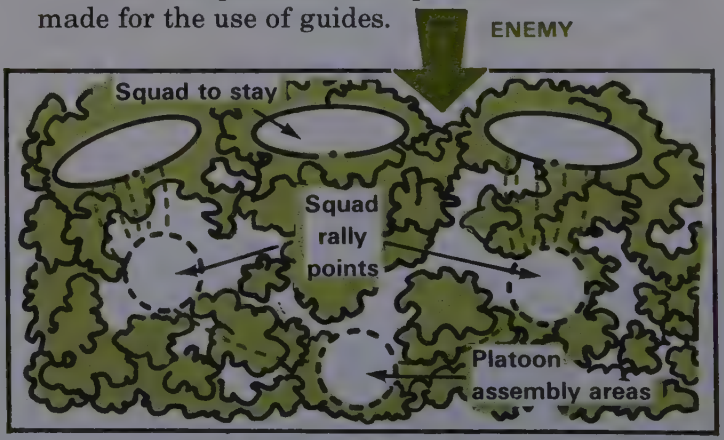
Disengagements "not under pressure" are conducted when the disengaging force commander thinks he can disengage his unit using deception and/or stealth before the enemy can react. The success of this type of disengagement depends primarily on secrecy and deception or speed of execution because you try to pull out before the enemy realizes you are moving and before he can react. It is usually conducted at night or during periods of reduced visibility. A disengagement not under pressure can be conducted by stealth or by all units moving simultaneously.

### DISENGAGING BY STEALTH


One Way
Another Way
Company withdraws leaving one squad from each forward platoon as overwatching force.
Company withdraws leaving one platoon and one OP as overwatching force.

Troops disengage and assemble as quietly as possible with protection provided by an overwatching force. The overwatching force may be composed of a squad from each platoon, one platoon from the company, or any other combination of forward elements. The overwatching force simulates the normal activities of the unit by their fires, patrols, radio traffic, noise, and other measures which will hide from the enemy the fact that a disengagement is taking place.

The platoon leader will designate squad rally points (normally located immediately to the rear of the squad position or with the squad APC) and routes to the platoon assembly area. Routes and assembly areas may be marked for ease of identification. This is done only if such marking will not compromise the operation. Plans are made for the use of guides.



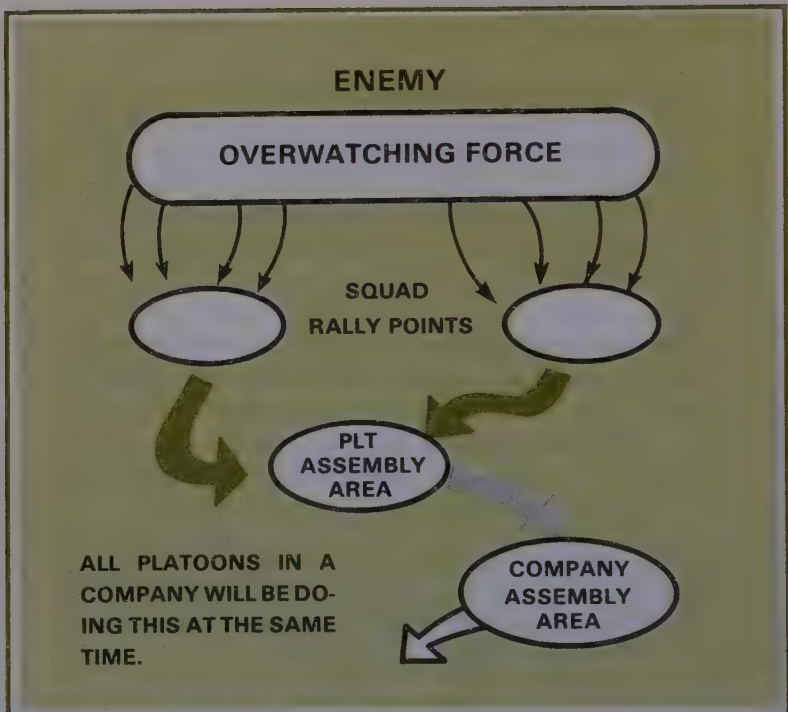
To facilitate control, light infantry platoon leaders may attach machinegun crews and Dragons to rifle squads. These attachments are normally effective only for the movement.

Mechanized infantry may infiltrate their APCs back to assembly areas to the rear over a period of time, then disengage their maneuver teams by foot to these assembly areas.

The disengagement of the squad begins at the time designated by the platoon leader (or the covering force commander if the squad is a part of the covering force).

Movement to the squad rally points or APCs may be by thinning the lines, by fire team, or by the entire squad moving at once.

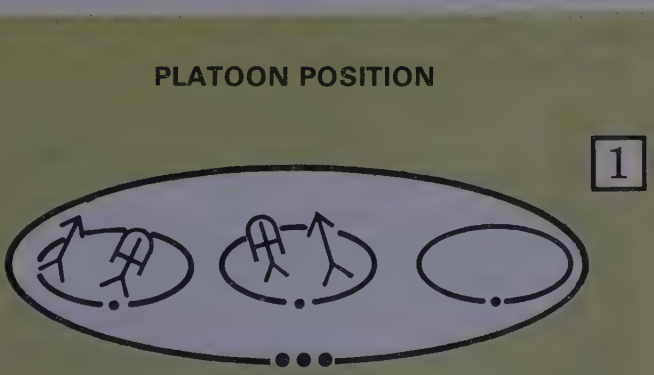
At the squad rally point, the squad leader checks off his people to make sure they are all there and then moves them back to the platoon assembly area. The squad leader may or may not assemble the squad at the squad rally point.

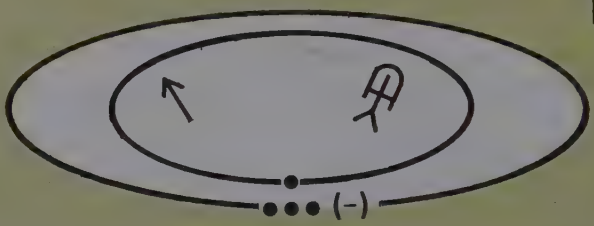



Squads move to platoon assembly areas and platoons move to the company assembly area. The traveling formation is normally used for ease of control, and movement is made quietly and quickly. Noise and light discipline is critical. The main body is normally prohibited from transmitting on the radio. The overwatching force provides the protection for these movements by deceiving the enemy, and by detecting and, if necessary, fighting to halt any enemy attack during the withdrawal of the main body.

## THE SQUAD AS A PART OF THE OVERWATCHING FORCE

An overwatching force in a withdrawal not under enemy pressure operates under a single commander and protects the main body by deception and by resistance when necessary. Prior to the withdrawal of the main body the overwatching force normally shifts, as necessary, to overwatch the sector overwatched by the old unit. Only as much shifting of men as necessary is done. Too much shifting could alert the enemy. Also, if the overwatching force is to spread out, command and control will be difficult. For example, if a squad was detailed for an overwatching force for the rest of a withdrawing platoon it could do so like this:





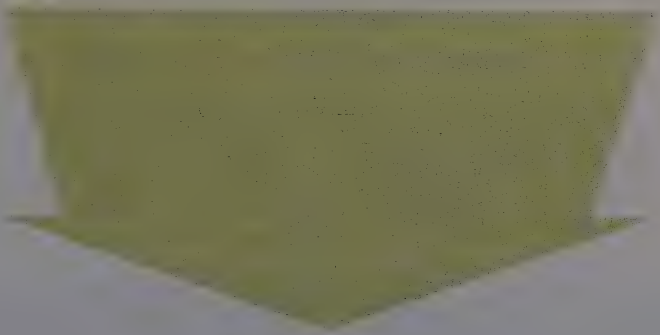

**THE SOLDIERS OF THE OVERWATCHING SQUAD ARE SHIFTED AS NECESSARY (NORMALLY BY FIRE TEAM) TO INSURE IT CAN OVERWATCH AVENUES OF APPROACH OF THE OTHER SQUADS. ONCE THE OVERWATCHING SQUAD HAS REDEPLOYED, THE MAIN BODY OF THE PLATOON WITHDRAWS.**

When a squad overwatches the withdrawal of the rest of the platoon, at least one Dragon normally remains with the overwatching squad to provide antitank protection. The Dragon is moved to the location from which it can best accomplish the platoon's antiarmor mission.

One machinegun will also normally be left with the overwatching squad. This will normally be the gun that can fire the best final protective fire for the platoon.

The overwatching force withdraws on order of the overwatching force commander after the main body has successfully broken contact.

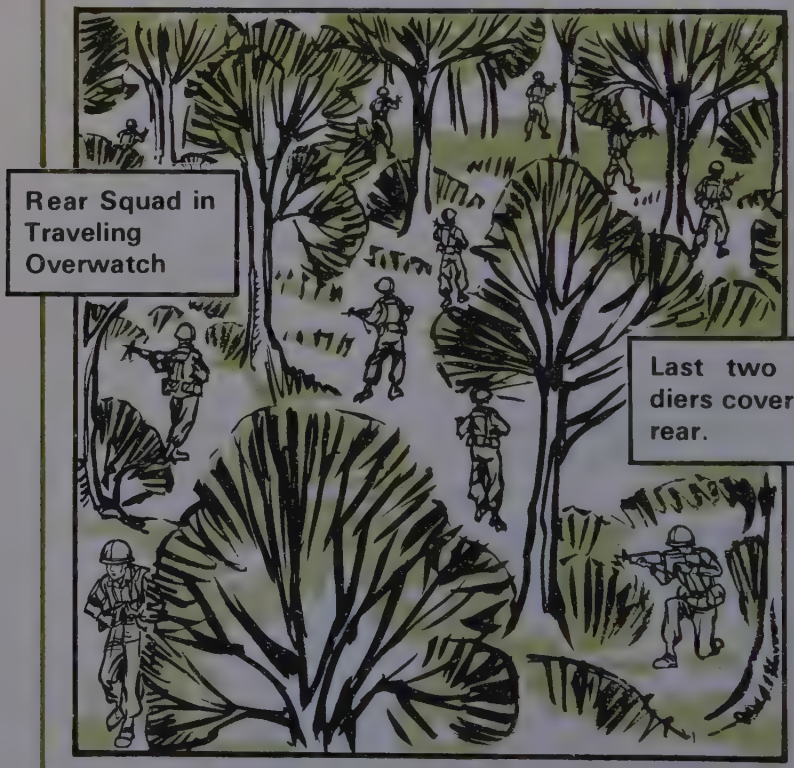
## DISENGAGING BY SIMULTANEOUS MOVEMENT OF ALL FORCES



At times a unit may disengage from the enemy by moving simultaneously away from him, using no overwatching force. This may be done when facing light enemy forces, when a major obstacle is between the enemy and our forces, when mechanized forces are facing light enemy infantry, or some other factor reduces the relative mobility of the enemy or slows his reaction time. When this happens, speed of execution rather than deception is the key to success. At a specified time, elements rapidly move to squad, platoon, and company assembly areas and move from the area. The squad leader must have his element prepared to move at the designated time, but the preparations must be done so as not to tip off the enemy as to the disengagement. Often, on order of the platoon leader, just prior to withdrawing, units will fire a short, but heavy, volume of fire in front and to the flanks of their position to disrupt the enemy.

## ACTIONS ONCE CONTACT IS BROKEN

Once contact with the enemy is broken, the squad moves, using the normal movement techniques. These techniques are modified by the platoon leader to provide sufficient rear security. Here is an example of the way traveling overwatch may be modified.

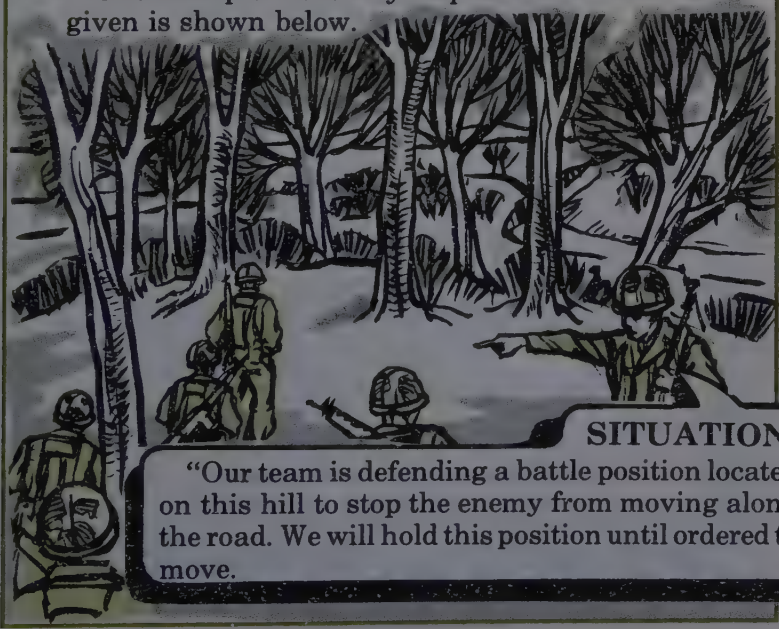


## Section V
# SQUAD ORDERS

## SQUAD DEFENSE ORDER

The squad order is normally given on the terrain to be defended. It is given following the general format shown in appendix C. The squad leader will personally point out to each man in the squad his individual position and sector of fire. Normally, much of what a squad does to set up a defensive position is SOP -- that is, it is done without the specific direction of the squad or platoon leader, but the squad leader augments or refines these SOP items as necessary.

One example of the way a squad defense order is given is shown below.



**SITUATION**

"Our team is defending a battle position located on this hill to stop the enemy from moving along the road. We will hold this position until ordered to move.

"The enemy is expected to be here in about 4 hours. We can expect to face strong enemy mechanized and tank forces. They will be generally coming at us from the east and will probably attack mounted along the road initially. Once we stop their mounted attack, they will probably dismount and try to attack the flank of the team battle position. I will give you further information about the enemy when I get it.

"Our platoon is to occupy a dismounted defensive position in that wooded area along that trail about 300 meters forward of where we are right now. Our platoon is to stop any enemy movement along that trail trying to attack the flank of the team battle position. The platoon's APCs will support by fire from here. 2d Platoon will defend dismounted in that woodline to the right. B Team is about a kilometer and half to our left. Our tanks and TOWs will occupy firing positions on the ridgeline right behind us."

**MISSION**

"Our squad's mission is to hold the center section of the platoon's dismounted defensive position with the squad's maneuver team."

## EXECUTION

"The carrier team will consist of SGT Bush, Murphy, and Berry with the Dragon. It will be working for the platoon sergeant. SGT Bush, you will meet him here in 15 minutes. Before you leave the area make sure the squad has a chance to unload their stuff. The maneuver team will consist of the rest of the squad. We'll go down and take a look at it now."

**After walking down to the squad position the squad leader starts at the left of the squad's sector.**

"Our sector begins here. 1st Squad will cover to here with fire. Our sector ends in about a hundred meters where we tie in with 3d Squad. I've checked over the area and will show you all your positions, but first here are some things you should know.

"Right now the team has two OPs forward. We will establish local security of one man per position beginning at 1830.

"After I check with 3d Squad, I will check in front for targets for the 203s. Let me know dead space areas between positions.

"The platoon leader is going to select a platoon assembly area; once it's selected we will work out routes back and a squad rally point.

"It looks like the undergrowth here is pretty thick, so let's get hot on clearing the fields of fire."

**SERVICE SUPPORT**

"The platoon aidman and CP will be right behind our squad. Supper meal will be A rations. It should be here about 1700. Pick up three C ration meals per man.

"Pick up and put a double basic load of ammo in each position. The ammo will be here with chow."

## COMMAND AND SIGNAL

"The signal for the FPF is a red star cluster. The challenge and password until 2400 hours is STORY STALLION. After 2400 hours it is WILD RIDE. Our frequencies and call signs will not change.

"Are there any questions . . . if not let's get to work -- regular SOP except for what I've already said. Now let's take a look at your individual positions."

**After giving these general instructions, the squad leader begins showing the squad their positions.**

**The squad leader moves along the position about 20 meters and stops.**

"Griffin and Small, you set up a position here behind this clump of trees. The man on the left cover from that bush to that pile of rocks. The man on the right cover from that stump to that dead tree."

**Moving to the next position the squad leader says:**

"Jones, you and Nelson will be here behind this little knoll. Man on the right cover from the stump to that little gully. Pick up some extra Claymores to put in the gully and cover it with 203 fire -- Jones, that means you will be on the left of the position. Nelson, you cover from that bush to that little opening in the trees."

**The squad leader moves on, stops, and points to a small depression.**

"I'll set up my position here."

**Moving on to the next position, the squad leader takes a good look at the ground and the area in front of the position.**

"SGT Finn, you and Brown put the machinegun here. The platoon leader wants us to cover a sector of fire in front of the squad position with the machinegun. Put in the FPL on a line to that forked tree. Your primary sector of fire is from the forked tree to the right side of that bunch of rocks. Your secondary sector of fire is from that corner of the fence to the patch of moss. The platoon leader will be by in a few minutes to check the position out; don't dig in until he approves it."

**Moving to the final position, the squad leader points out a position behind a big tree.**

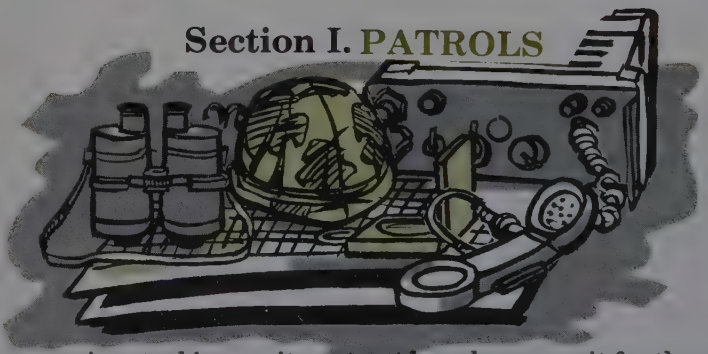
"Garcia, you and Carver will be here. Man on left cover the area from that grassy spot to the fence post there. Man on the right cover from the dip in the trail to that small tree. Make sure you can cover the right side of the machinegun as they will be facing the opposite direction."

The squad leader has clearly and concisely given instructions to his squad. His squad order was short because much of the detail of what should be done (for example, what equipment to dismount) was a part of the unit SOP. From this point on the squad leader will supervise the set-up of the defense and give additional instructions as necessary.

CHAPTER 8

# PATROLS, AMBUSHES and OBSERVATION POSTS/ LISTENING POSTS

## Section I. PATROLS



A patrol is a unit sent out by a larger unit for the purpose of carrying out a combat or reconnaissance mission. A patrol can be as small as a fire team, or as large as a company. A unit may be modified as necessary to get the job done. If necessary, fire teams can be attached to squads to form reinforced squads. The patrol can consist of two squads under one leader, or one squad can be detached to form a platoon-minus.

For a particular mission, individuals with needed skills can be attached to the patrol. These can be scout dog handlers, interpreters, medics, demolitions experts, forward observers, intelligence analysts, or communications specialists.

The planned actions on the objective area determine the type patrol which is conducted:

## PATROLS FALL INTO TWO GENERAL CATEGORIES

1

### RECONNAISSANCE PATROLS

- **Point Reconnaissance**
- **Area Reconnaissance**

2

### COMBAT PATROLS

- **Contact Patrols**
- **Raids**
- **Ambush Patrols**

## CAPABILITIES

Both light and mechanized infantry units are capable of conducting all types of dismounted patrols. Mechanized infantry has the additional capability of conducting part of or all of a patrol mounted. Mounted rconnaissance and combat patrols are common missions for mechanized infantry squads. However, mounted patrols usually consist of at least two mechanized squads with their carriers. Rarely will one mechanized squad conduct a mounted patrol by itself.

## CHARACTERISTICS OF PATROLLING MISSIONS

A patrolling mission is in some ways different from a conventional mission.

### REQUIRES INDEPENDENT OR SEMI- INDEPENDENT ACTION

A patrol mission may take the squad away from the direct overwatch of the platoon on which it can rely for support. The patrolling squad may have some limited fire support, but it is more or less on its own. It must be self-sufficient. If and when it does become engaged, it must rely upon its own resources and must either defeat the enemy or disengage. Reinforcement will normally not be possible.

## REQUIRES DETAILED PLANNING

Patrolling missions require detailed and well-thought-out plans. The mission must be analyzed in great detail. Thorough reconnaissance is desired. Nothing is left to chance. Alternate plans and contingencies must be developed and coordinated. Each soldier must know exactly what he is to do. Each piece of equipment must be inspected.

## MAY REQUIRE TASK ORGANIZATION AND SPECIAL EQUIPMENT

When patrolling missions are planned, the patrol leader must consider all possibilities. The squad may need to carry special equipment or weapons. The leader must keep in mind that the patrol should be kept as small as possible to avoid detection. He should take only the number of men required consistent with unit integrity. A buddy team is normally the smallest grouping that is given a task. However, as a general rule, missions are not assigned below fire team level. A man would not be taken on patrol if he might compromise the mission -- such as a man with a cold who may cough or a man not able to keep up.

## REQUIRES REHEARSALS

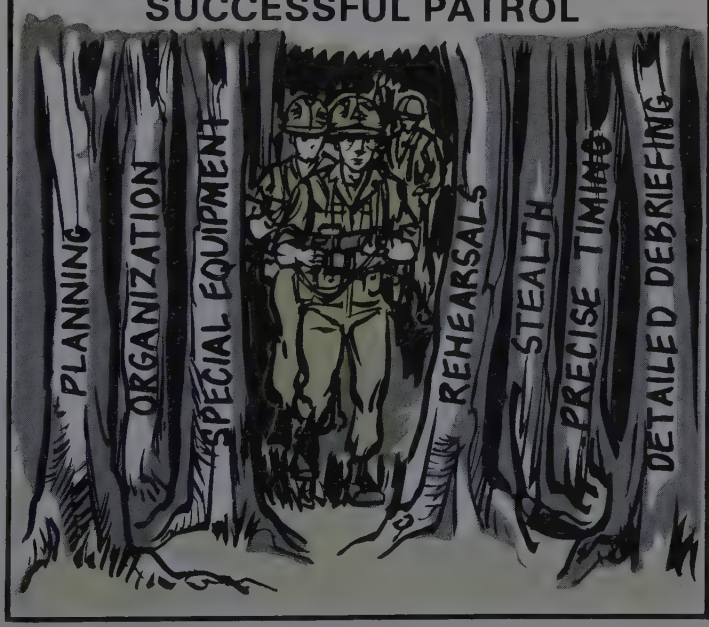
Since a patrolling mission may require the attachment of men who are not used to working with the unit, and because of the need for exact timing, **rehearsals are essential.** Units must rehearse every detail of their mission when time is available, to insure that their plans are executed with precision.

## REQUIRES STEALTH

In patrolling operations a unit acheives surprise through stealth. A combat patrol must move undetected until it is close enough to its objective to insure that it can destroy the resistance, complete the mission, and depart the area before reinforcements can be brought in by the enemy. During reconnaissance missions, the unit makes every effort to complete the mission totally undetected by the enemy. For the mech squad that is on a mounted patrol, this means that it **must** use the terrain driving rules.

## REQUIRES DETAILED DEBRIEFING

All patrolling units have a mission of gathering information. Every unit conducting patrolling missions should assign individuals to take notes and draw sketches of things they observe. The unit should be constantly aware of any changes in enemy weapons, equipment, or tactics. By debriefing, intelligence personnel can help devise better ways to defeat the enemy.

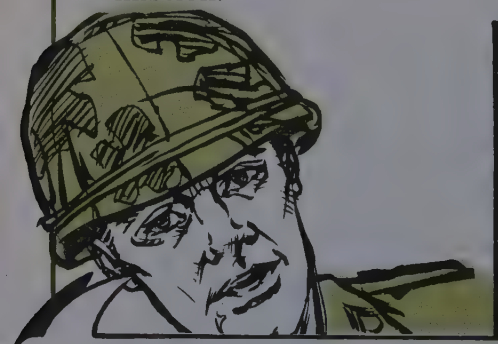


## COMMON TASKS FOR ALL PATROLS

During all patrols there are some basic tasks which must be accomplished.

### TASK ORGANIZING

When he receives the patrol mission, the patrol leader organizes his men and equipment based upon the tasks that have to be performed at the objective. He assigns one or more missions to each subordinate team within the patrol. For instance, in a squad-size combat patrol with a raid mission, one team may have the mission of providing security and providing supporting fire to the team assaulting the objective. Men in the squad may have to be taken from one team and placed in another if it is necessary to accomplish the mission.



MISSION
ENEMY
TERRAIN
TROOPS

**The patrol leader must task organize based on what must be accomplished. In addition to organizing the squad, consider specialized equipment or weapons and the men needed to operate them.**

## PATROL ORDER

The patrol order is issued in much the same way as any other operation order. If it is a squad size patrol, the platoon leader gives detailed instructions to the squad leader. He will not break down the duties into separate parts for elements, teams, and individuals. He will give all of the duties that pertain to the squad when he gives the squad's mission. For instance, he may give the squad the mission of assault and also give it the responsibility of emplacing demolitions, searching, etc. The squad leader then assigns the men to do it. The squad leader assigns the individual tasks or the tasks that require less than a fire team. The entire squad should be present when the squad leader gives his order.

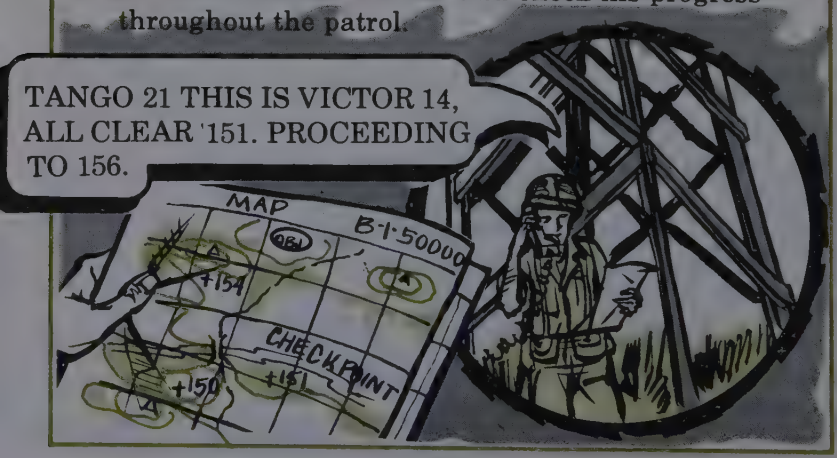
**In addition to standard operation order items, the patrol leader covers the following in his order:**

- **PRIMARY AND ALTERNATE ROUTES.**
- **DEPARTURE AND REENTRY OF FRIENDLY AREAS.**
- **ACTION IN DANGER AREAS.**
- **ACTIONS ON CONTACT.**
- **RALLY POINTS.**
- **ACTIONS ON THE OBJECTIVE AREAS.**

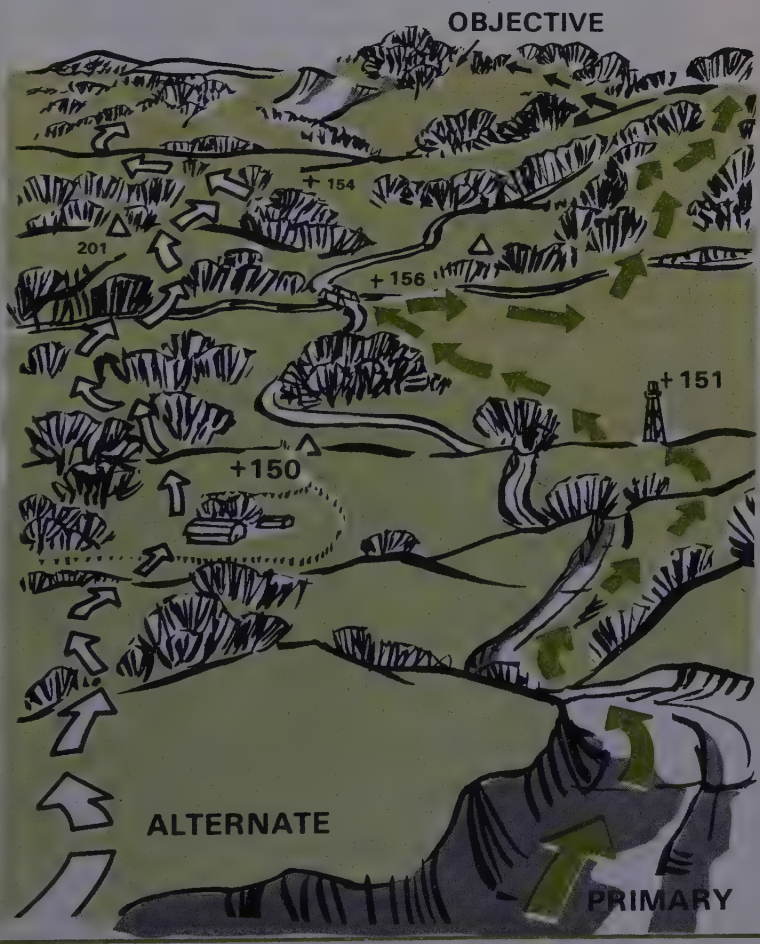
In patrolling, the unit moves using the same basic movement techniques discussed in chapters 4 and 5. However, the patrol wants to avoid contact unless it is according to the plan. The patrol's mission could be compromised by premature or unexpected contact. Lead elements seek the enemy's location and avoid contact. If contact is established, the emphasis is on breaking contact unless the patrol has been detected and the enemy is so weak that the squad can destroy him readily.

## ROUTE SELECTION AND PLANNING

The patrol leader selects a primary and at least one alternate route to and from the patrol objective. Each route is divided into legs or sections which start and end at a recognizable terrain feature. This technique enables the patrol leader to remain oriented and check his progress throughout the patrol.

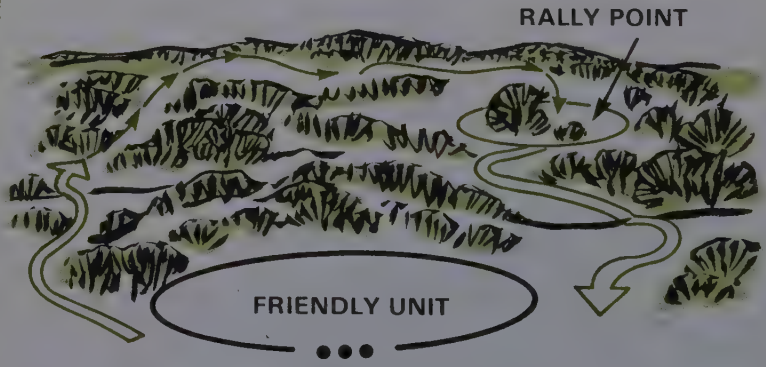


When terrain permits, the legs may be on a compass azimuth and paced off during the patrol. Enemy STANO devices and the requirement to use covered and concealed routes will normally prohibit movement on a direct compass azimuth.



## DEPARTURE AND REENTRY OF FRIENDLY LINES

The movement through friendly lines is one of the most critical parts of the patrol. The patrol leader is normally given points of departure and reentry of friendly lines. He is also given a time for departure and reentry. The patrol leader must insure complete coordination is made at the exit and reentry points to include arranging for guides through obstacles, code words, radio frequencies, and recognition signals. The patrol leader must arrange to verify every member of a returning patrol to insure there are no enemy infiltrators. Normally during reentry, the patrol will stop at a rally point in enemy territory and contact friendly units and receive clearance before attempting to move to the reentry point.




**Reentry is the most critical. Do you know the recognition signal? Are the friendlies aware of your intent?**

**The rally point should be beyond friendly small-arms range.**

**COORDINATE FOR REENTRY BEFORE YOU DEPART!**

## DANGER AREAS

When moving to the objective, a leader must plan to avoid those areas where the likelihood of contact or discovery by the enemy will occur. Because contact or discovery will jeopardize their mission, patrol leaders designate such areas as danger areas. There are times when these areas cannot be avoided. When this occurs special techniques are required.

Typical danger areas are:

- **highways**
- **streams**
- **large open areas**
- **known enemy positions**

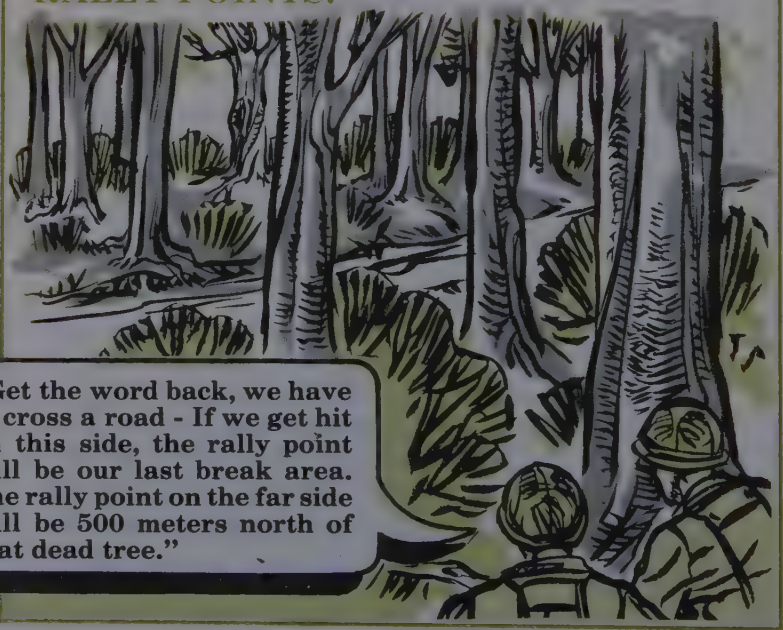
***FACING THE ENEMY, THE RECONNAISSANCE DETACHMENT COMMANDER BECOMES CONSCIOUS OF HIS HEAVY RESPONSIBILITIES. EVERY MISTAKE MEANS CASUALTIES, PERHAPS THE LIVES OF HIS MEN. THEREFORE, ANY ADVANCE MUST BE MADE WITH EXTREME CAUTION AND DELIBERATION.***

*ROMMEL*

Use the following techniques in conjunction with bounding overwatch. Portions of the lead element may physically secure the flanks and have the remainder of the patrol pass through them to the far side. Depending on the area, the patrol may cross by infiltrating fire teams, and link up at a rally point beyond the area.

Each danger area is different and may have to be crossed differently. There is no one solution for crossing danger areas. There are many different techniques. However, there are certain basic points to remember:

DESIGNATE NEAR AND FAR SIDE RALLY POINTS.


"Get the word back, we have to cross a road - If we get hit on this side, the rally point will be our last break area. The rally point on the far side will be 500 meters north of that dead tree."

... AND in the following order:

1 SECURE THE NEAR SIDE.

2 SECURE THE FLANKS.

3 SECURE THE FAR SIDE.

4 CROSS THE DANGER AREA.

**Reconnoitering and securing the near side may involve nothing more than a visual observation. It may also involve actual physical security being placed out at a distance to either side of the crossing point to give early warning of enemy approach.**

When conducting the patrol mounted, the patrol leader should stop short of the danger area and dismount as many men as necessary to accomplish the steps listed above.

## ACTIONS ON CONTACT EN ROUTE

**WHEN THE PATROL MAKES UNEXPECTED CONTACT, IT MUST BE PREPARED TO QUICKLY BREAK CONTACT AND CONTINUE THE MISSION.**

IMMEDIATE ACTION DRILLS are established by the patrol leader based on the mission, enemy, and terrain. They may be SOP in the unit or established for a single patrol. Every area and enemy require different action, therefore, there is no universal set of drills. Immediate action drills normally include actions for breaking contact and for reacting to ambushes.

RALLY POINTS are used along the patrol route to reassemble the patrol if it becomes dispersed. Rally points are selected on the near and far sides of danger areas. Additional rally points may be selected along the route as required or designated during the patrol. The patrol leader must state the action to be taken at rally points. During the patrol, additional instructions are issued. Each man must know the rally point in case the patrol becomes dispersed. Normally, instructions provide for continuing the patrol after a certain number of men arrive at the rally point or after a certain period of time. The senior man at the rally point will, in the absence of the patrol leader, decide how to best accomplish the mission.

## DETAILED INSTRUCTIONS FOR ACTIONS ON THE OBJECTIVE AREA

For each type patrol, detailed instructions are given for actions on the objective area, to cover at least the following:

- ☑ **OCCUPATION AND SECURITY OF THE OBJECTIVE RALLY POINT**
- ☑ **CONDUCT OF THE LEADER'S RECONNAISSANCE**
- ☑ **FINAL CHECKS ON EQUIPMENT AND PERSONNEL, AND ADJUSTMENT TO PLANS**
- ☑ **INITIAL POSITIONING OF ELEMENTS OF THE PATROL TO ACCOMPLISH THEIR MISSIONS**
- ☑ **FIRE SUPPORT**
- ☑ **SIGNALS**
- ☑ **ACTIONS AFTER EXECUTION OF MISSION**
- ☑ **DISSEMINATION OF INFORMATION GAINED ON THE OBJECTIVE TO ALL PATROL MEMBERS**

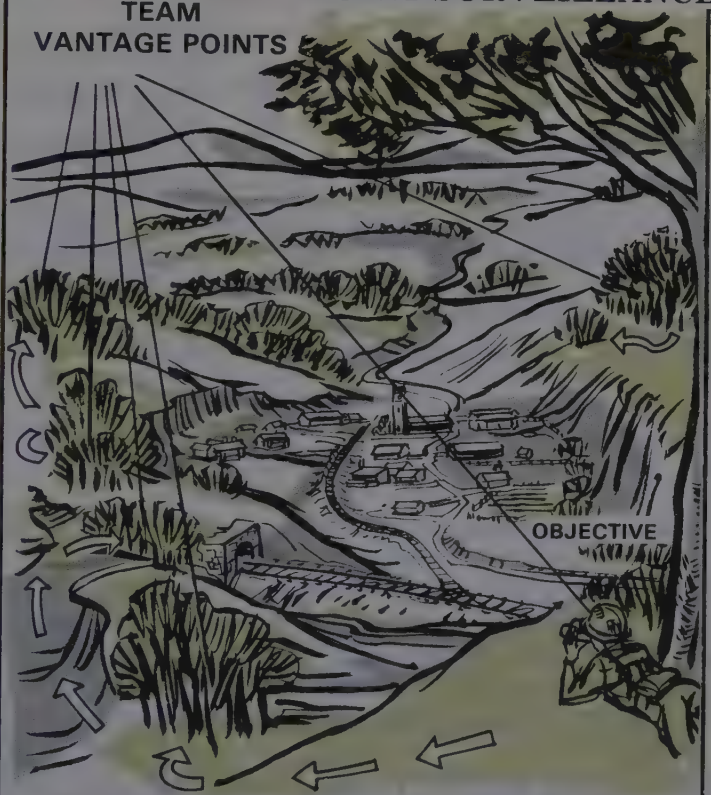
# RECONNAISSANCE PATROLS

A point or area reconnaissance patrol is a common fire team or squad mission. Mechanized infantry units may move to the objective area mounted or dismounted or conduct the entire mission mounted, depending on the situation and mission.

## POINT RECONNAISSANCE

The patrol is halted and concealed near the objective, usually at the objective rally point. The leader reconnoiters to confirm location of the objective, plans for positioning the teams, and plans for accomplishing the mission. Security teams, when used, are positioned so that they can secure the objective rally point, provide early warning of enemy approach, protect the reconnaissance element, or any combination of these tasks. The reconnaissance element then reconnoiters the objective. This is done by the method best suited to the terrain, the layout of the objective, and the requirements of the mission. When the reconnaissance is completed, all information gained is disseminated to all patrol members. A preliminary report is made if radio contact is possible. A full report is made as early as possible.

## POINT SURVEILLANCE




The same general procedure is followed for the conduct of point surveillance. In surveillance, however, teams are positioned at vantage points near or around the objective and observe for required periods, moving from position to position as required to accomplish the mission.

## AREA RECONNAISSANCE

The leader's reconnaissance is conducted, security teams are positioned, and reconnaissance teams sent out as in a point reconnaissance mission. When the entire patrol is used to reconnoiter the area, each team performs both reconnaissance and security missions. When teams are not to return to the objective rally point, they assemble at some other designated rally point. This method of assembly might be used when teams must avoid moving through an area twice or when the objective is approached from the rear.

## AREA SURVEILLANCE

This is conducted in the same manner as point surveillance, differing only in that multiple teams are required and an extended area, rather than a point, is kept under surveillance.

# COMBAT PATROLS

The squad may conduct various types of combat patrols or participate as part of a platoon-sized patrol.

## PATROLS FOR LOCAL SECURITY

The patrol leader selects a series of objectives covering the area in or over which the patrol is to move. Actions to be taken at each objective are planned, based on available information. This is done in the same manner that actions at danger areas are planned. The patrol leader must be alert to modify his plans if the situation at an objective is not as anticipated.

As each objective is secured, plans for the next objective are confirmed or modified, and the patrol continues.

A fire team or squad may conduct this type of a patrol after a "stand to" or first light.

## CONTACT PATROLS

A series of objectives is selected just as in a local security patrol. The patrol proceeds from one objective to another until contact with the enemy is established, then acts in accordance with the situation, or as directed.

## RAIDS

The mission of a raid patrol is to destroy specific enemy positions, installations, or personnel. Squads usually participate in a raid as part of a larger force.

## Section II

# AMBUSH

An ambush is a surprise attack from a concealed position upon a moving or temporarily halted target. The following terms apply:

**AMBUSH SITE - the terrain on which a point ambush is established.**

**KILL ZONE - the location where you concentrate your fires to kill the enemy.**

**AMBUSH FORCE - the unit which establishes an ambush.**

**ATTACK FORCE - the element of the ambush force in a point ambush, which fires and/or assaults into the kill zone to destroy the enemy.**

**SECURITY FORCE - the early warning and/or security portion of a point ambush. In a patrol, the security element is the security force.**

**NEAR AMBUSH - an ambush in which the attack force assaults into the killing zone.**

**FAR AMBUSH - an ambush in which the attack force does not assault into the killing zone. This may be appropriate in open terrain offering good fields of fire or when attack is by fire only (armor ambush).**

## DELIBERATE AMBUSH

An ambush planned against a specific target. Detailed information of the target is required: size, nature, organization, armament, equipment, route of movement, and times the target will reach or pass certain points on its route.

## HASTY AMBUSH

This is the ambush of a target of opportunity, often the action of a combat patrol.

## SQUAD-SIZED AMBUSH

The squad may receive a mission to conduct either a point ambush or an armor ambush.

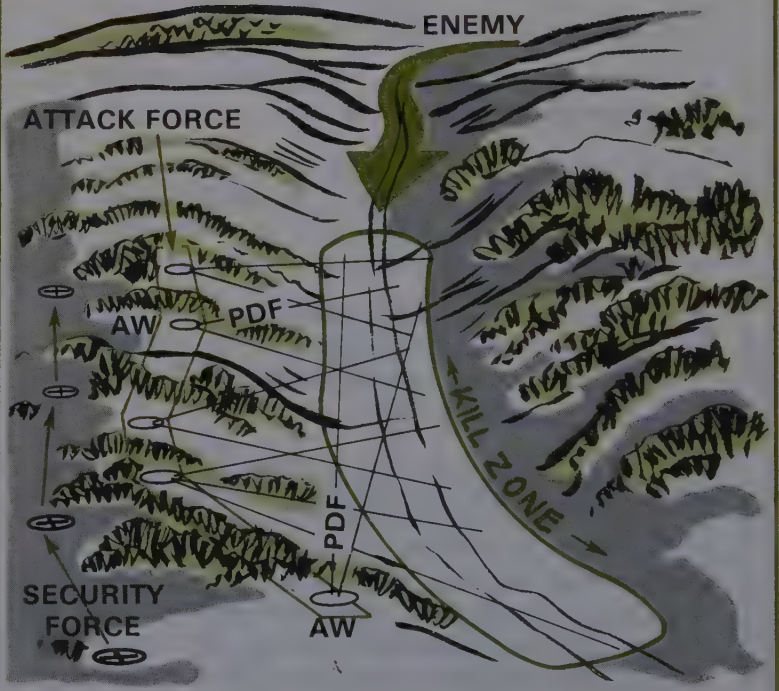
## POINT AMBUSH

A point ambush is positioned along the target's expected avenue of approach. The manner in which the ambush force deploys, to a great extent, determines whether a point ambush is able to deliver the heavy volume of highly concentrated fire necessary to isolate, trap, and destroy the target.

## TYPICAL POINT AMBUSH

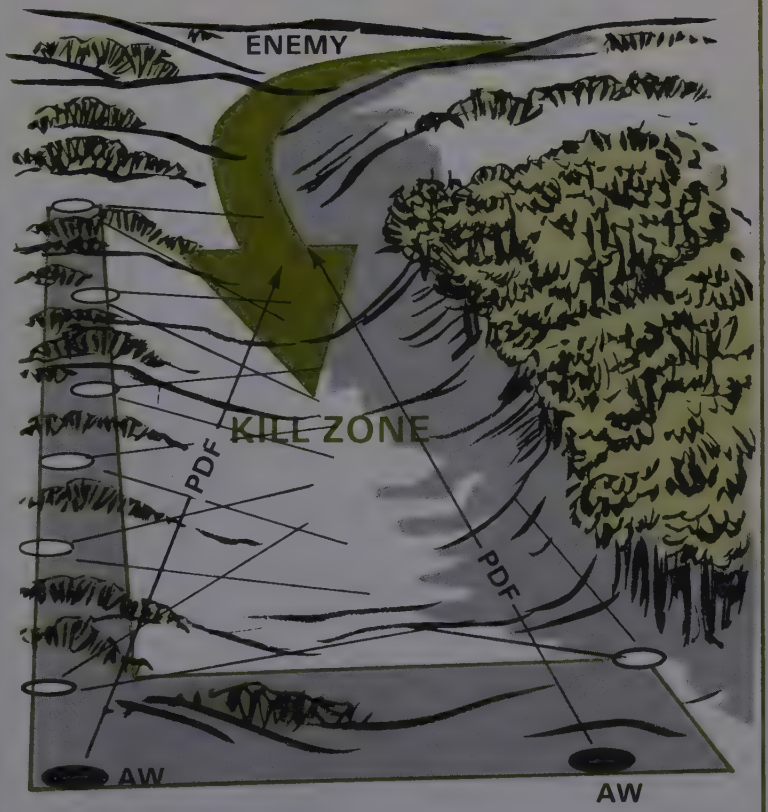
**THE FLANK WEAPONS IN THE AMBUSH SHOULD BE FIRED IN A MANNER TO PREVENT ESCAPE.**

If possible, the far side of an ambush should be an obstacle, e.g., rivers, cliffs, thick woods - if no obstacle is present, lay a hasty mine field.




The security force must provide rear and flank security, and be prepared to cover withdrawal of attack force.

## CONSIDER THIS TECHNIQUE

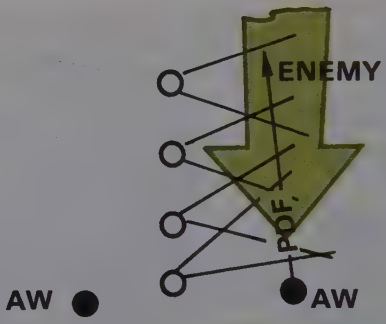



The L shaped ambush is very effective because the enemy is met by enfilade fire from automatic weapons. Care must be taken to insure that friendly fire does not cause friendly casualties.

**ANOTHER TECHNIQUE IS TO ALINE THE AMBUSH LIKE THIS:**

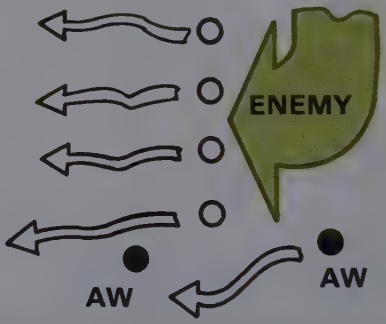
**1**

Either AW can engage the enemy depending on the avenue of approach.



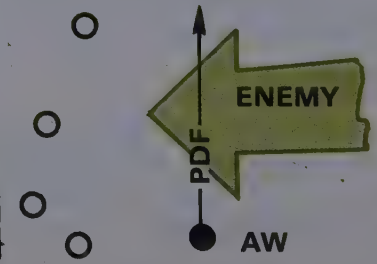

**2**

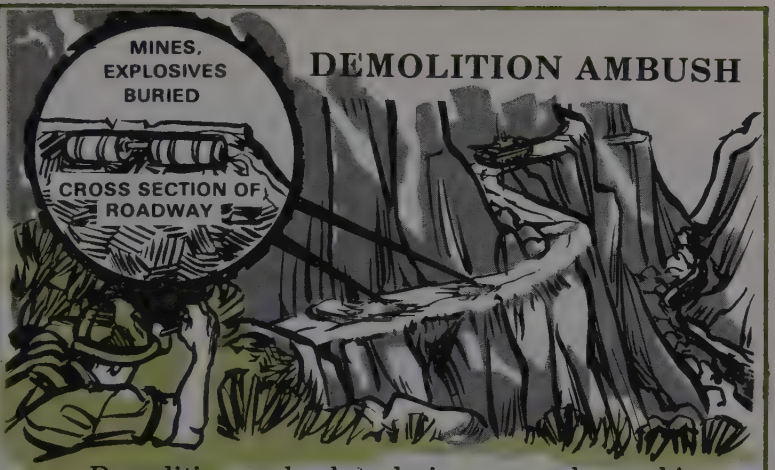
As the enemy assaults, the ambush force withdraws.




**3**

The other AW can engage the enemy with flanking fire.






# DEMOLITION AMBUSH

Demolition ambush techniques may be used in conjunction with any ambush or as the primary method of attacking the enemy.

Electrically detonated mines or demolition charges, or both, are planted in an area over which a target is expected to pass. This may be a portion of a road or trail, an open field, or any area which can be observed from a distance.

Activating wires are run to a concealed observation point sufficiently distant to insure safety of the ambushers.

As large a force as desired or necessary can be used to mine the area. A small force remains to initiate the ambush.

When a target enters the mined area (**killing zone**) the remaining force detonates the explosives and withdraws immediately.

## SIGNALS

Signals are needed to execute the ambush. These may be given by:

- **Arm-and-hand signals.**
- **Field telephone, when there is no danger that wire between positions will compromise the ambush.**
- **Radio, as a quiet voice message, by transmitting a prearranged number of taps, or by signaling with the push-to-talk switch.**
- **Claymore, M60 machinegun, squad leader's weapon, or a combination of these.**

By using one or more of these signals the patrol leader can:

- **initiate the ambush. This may be a shot or the detonation of mines or explosives.**
- **lift or shift fire and assault the target. Voice commands, whistles, or pyrotechnics may be used. All fire must stop immediately so that the assault can be made before the target can react.**
- **withdraw the ambush. This, too, can be voice commands, whistles, or pyrotechnics.**

## FIRE DISCIPLINE

This is a key part of the ambush. Fire must be withheld until the signal is given, then immediately delivered in the heaviest, most accurate volume possible. Properly timed and delivered fires contribute heavily to the achievement of surprise, as well as to destruction of the target. When the target is to be assaulted, the lifting or shifting of fire must be equally precise. Otherwise, the assault is delayed and the target has an opportunity to recover and react.

## WITHDRAWAL TO THE OBJECTIVE RALLY POINT

The objective rally point is located far enough from the ambush site that it will not be overrun if the target attacks the ambush. Routes of withdrawal to the objective rally point are reconnoitered. Situation permitting, each man walks the route he is to use and picks out checkpoints. When the ambush is to be executed at night, each man must be able to follow his route in the dark.

On signal, the patrol quickly but quietly withdraws to the objective rally point, reorganizes, and begins its return march.

If the ambush was not successful and the patrol is pursued, withdrawal may be by bounds. The last group may arm mines, previously placed along the withdrawal route, to further delay pursuit.

The basic techniques for executing a point ambush apply equally against dismounted or armored enemy forces. When the ambush is conducted against armored forces, the far ambush is normally employed.

## ARMOR AMBUSH

The purpose of an armor ambush is to destroy one (sometimes two) armored vehicles. The Dragon is normally the major armor destroying weapon used in a squad-size armor ambush. If the terrain is so thick that fields of fire are very short and armor movement is very restricted, LAWs may be the primary weapon.

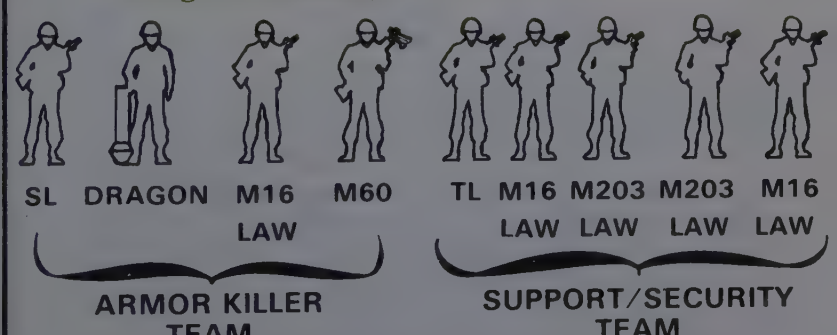
This section addresses the squad as the normal size unit for an armor ambush. Given that mission, make sure each team can communicate and knows where to go, what to do, and how to get back.

To be successful, the squad leader must:

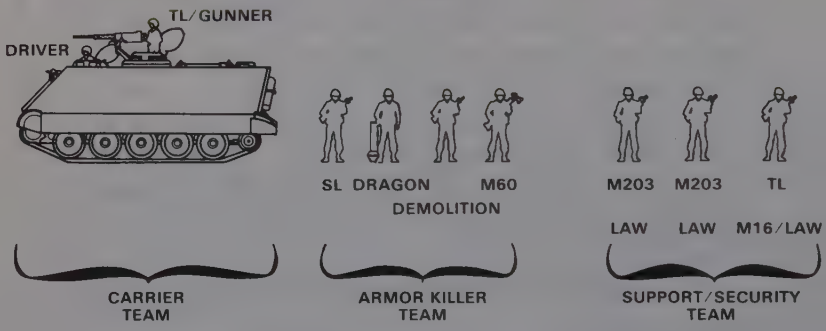
### ORGANIZE

When told to conduct an armor ambush, the squad leader organizes his men, weapons, and equipment to accomplish the mission.

- **Light Infantry (9-man squad, M60 MG, and Dragon attached).**



- **Mech Infantry (9-man squad, Dragon attached).**




**Note** that for both mechanized and light infantry the squad leader puts himself in the armor killer team. He does this so he can control the Dragon gunner and decide when to open fire.

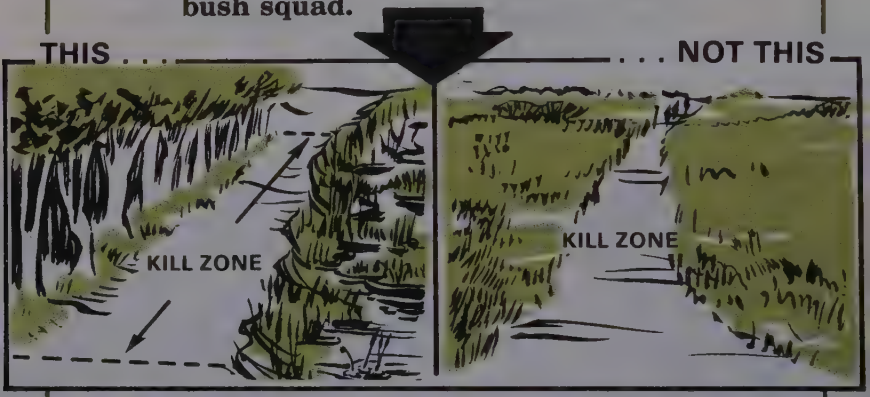
## SELECT THE EXACT AMBUSH SITE

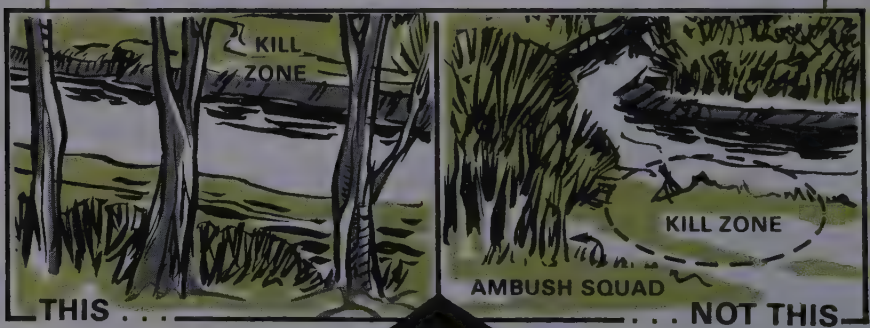
The platoon leader will give the general location of the ambush. The squad leader must select the best place to put his squad. The squad is positioned based primarily on the kill zone. When he arrives in the general location of the ambush, the squad leader must make a reconnaissance and

identify the kill zone. **An ideal kill zone has these characteristics:**

- **Enemy vehicles are likely to enter it. Don't select kill zones in locations that the enemy may not cross.**

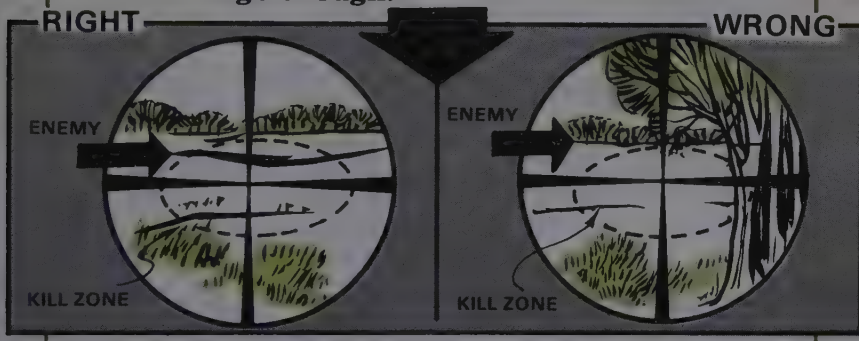
- **The terrain should make it difficult for other armor vehicles to bypass the destroyed vehicle and assault the ambush squad.**



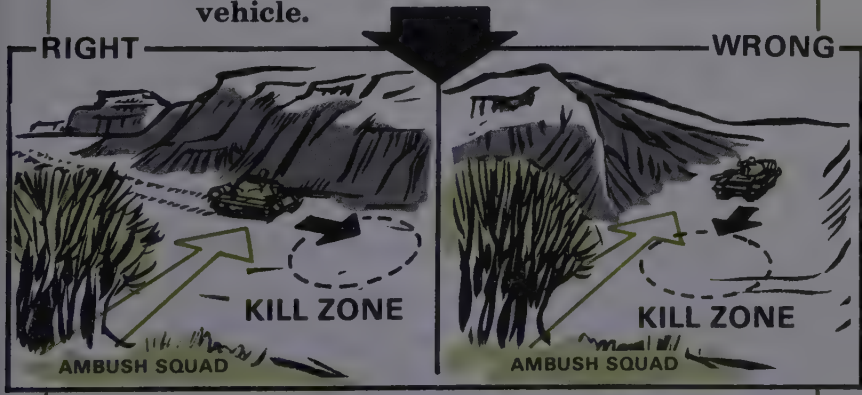




- **There is a natural obstacle between the kill zone and the ambush squad. If natural obstacles are not present (and time permits) artificial obstacles, such as a minefield, can be constructed by the squad.**

- **The kill zone is large enough to permit the Dragon gunner to fire, track, and hit the target vehicle. Generally, if the gunner looks through his sights at the kill zone and there are no obstructions in the field of view, then the kill zone is large enough.**




- **The kill zone permits the Dragon gunner to engage the flank of the target vehicle.**



- **The target tank should be isolated and not have other enemy tanks overwatching it.**

Having selected a kill zone, the squad leader then selects a firing position for the squad. **A good firing position has these characteristics:**

- **Good fields of fire into the kill zone.**
- **Cover and concealment.**
- **An obstacle between it and the kill zone.**
- **Covered and concealed withdrawal routes for the squad.**

## SET UP THE AMBUSH

After choosing the kill zone and the location of the squad, the squad leader positions his men and equipment.

The SUPPORT/SECURITY TEAM is positioned first in order to immediately establish security. Especially important is security to both flanks. These elements may have to be repositioned after the armor killer team sets up, but when occupying an ambush site, the leader must quickly put out security elements.

As soon as the ambush site is secured, the ARMOR KILLER TEAM sets up so that it can cover the kill zone. The squad leader and the Dragon gunner select the exact firing position. Once the Dragon is sited, the machinegun is put in a location where it can cover the kill zone.

When the squad is mechanized, the CARRIER TEAM positions itself hull down in the vicinity of the Dragon so that the cal .50 MG can fire into the kill zone.

**As time permits, the squad improves the ambush.**

☑ **Individual positions are prepared and improved.**

- **Claymore mines, explosives, or smoke pots can be placed on fake firing positions and rigged for remote firing. These will deceive the enemy as to the exact location and size of the ambush force and confuse him.**

- **Mechanically detonated mines or shaped charges can be employed in the kill zone.**

- **If the squad leader is sure that the enemy cannot observe the impact, he can call for check rounds from whatever indirect fires are supporting him. In most cases he will not have a forward observer with him, so the squad leader calls for fire through the FO attached to his platoon.**

- **Rehearsals are conducted to insure that each individual understands his responsibilities before, during, and after the ambush.**

## EXECUTE THE AMBUSH

The squad leader positions himself with the Dragon gunner. When enemy armor enters the kill zone, the squad leader selects the target and springs the ambush by telling the Dragon gunner when, and at which target, to fire. If more than one Dragon is employed in the ambush, they are fired simultaneously.

The remainder of the squad opens fire when the Dragon detonates in the kill zone. Ideally, indirect fires begin falling in the kill zone immediately after the Dragon detonates. If the kill zone is within range, each man in the squad (except the Dragon gunner and machinegunners) should fire a LAW. The machinegunners fire 50-75 rounds into the kill zone as the squad begins to disengage.

## WITHDRAW THE SQUAD

Because of the speed with which the remaining enemy armored vehicles may react to the ambush and the responsiveness of enemy artillery, the squad must be able to spring the ambush, break contact, and get out of the area in less than a minute. When mounted enemy infantry approaches the kill zone of the armor ambush, treat the carriers like light tanks. Let them get close, then kill them one at a time. If mounted infantry is mixed with armor, the tanks should be the target for the Dragons. The enemy personnel carriers should be engaged with LAWs, 40mm HEDP rounds, and automatic weapons after the primary antiarmor weapon is fired.

Should enemy dismounted infantry precede the armored vehicles into the kill zones, the squad leader must decide if they pose a threat to the ambush. If they can outflank the ambush site before the enemy armor can be engaged, he may decide to withdraw without making contact and try to set up another ambush along the avenue of approach somewhere else. If the enemy infantry poses an immediate threat to the squad or appears to be ready to find or trip any mechanical devices, initiate the ambush with automatic weapons. Except for not firing armor-defeating weapons, all other actions conducted are identical to those that were planned and rehearsed.

## Section III
# OBSERVATION POSTS/ LISTENING POSTS

## GENERAL

Observation posts (OPs) and listening posts (LPs) are positions occupied to observe (and listen to) the activities within a particular sector and from which you provide warning of an enemy approach. Normally, a light infantry squad leader will be tasked to position one OP or LP that has the mission of providing local security for the platoon. This OP/LP is located within small arms supporting range of the squad and consists of two or three men. Infrequently you may be tasked to establish two or more observation posts.

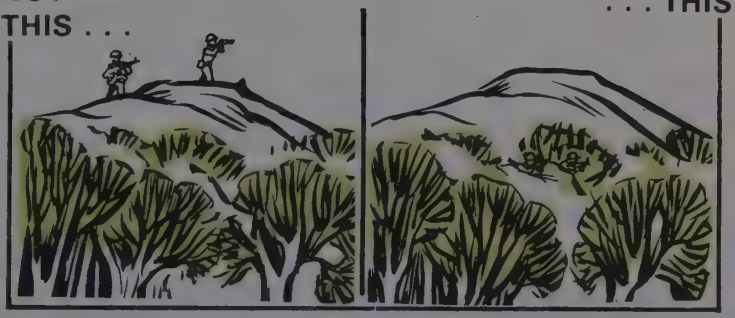
The mechanized infantry squad leader can establish the same type OP/LP as does light infantry. He can also receive the mission of setting up two OP/LPs using all of the squad members, or the entire squad can occupy one OP. These type missions will often be received on the mechanized battlefield when the platoon must provide security across a wide area. However, both mech and light infantry squad leaders look for OP locations that have similar characteristics.

## SELECTING THE LOCATION OF THE OP

Squads will be given the general location of the OP by the platoon leader. The squad leader must select the exact position. He looks for positions that:

- **Provide good observation of the desired area or sector. Ideally, an OP has overlapping fields of observation with the OPs on each flank. If it does not, report to the platoon leader those areas where overlapping observation is not possible.**
- **Provide cover and concealment. Good observation of the assigned sector may require you to accept less cover and concealment.**
- **Have covered and concealed routes to and from the position. You should be able to get into and leave the OP without being seen.**
- **Don't attract attention. Don't select a position that naturally draws the enemy's attention, such as a water tower, isolated grove of trees, a lone building or tree, or abandoned equipment.**

**Don't skyline the observers. Avoid hilltops; you are usually better off farther down the slope on a flank of the hill.**




## MANNING THE OP

The number of men needed to man an OP is at least two and may be three or four if you expect it to stay out for a long time. One man observes while the other provides local security, records, and reports information observed. The observer and recorder switch jobs every 20-30 minutes because the efficiency of an observer decreases rapidly after that time.

An OP should have binoculars to aid in observation and identification of enemy in the sector. They should also have a compass so they can give accurate direction to a sighting.

At least one man in the OP should know how to call for and adjust indirect fires.

## SETTING UP AN OP FOR LOCAL SECURITY

When the platoon is defending and the squad is told to set up an OP within small arms range of the squad position, the OP is basically the same for mechanized or light infantry. The squad leader takes out the men who are to man the OP and shows them where to set up. He must also tell the OP when and how to report, if and when they should fire at the enemy, and how to get back to the squad when he tells them to withdraw.

OP/LPs usually don't have wire or radio communications because the squad doesn't have telephones or radios to give them. This means that when they have something to report one man must come back to the squad leader with the information while the other man (men) continues to observe.

**If the OP has a telephone, conceal the wire in grass and other vegetation. If in sand or snow, cover it and sweep the surface with branches. Once the wire is put in, it may be cut by indirect fires or the enemy. Never send one man to check a wire line. If you have to check it, send two men -- one man to find the cut and another to overwatch him. Often the enemy will attempt to take prisoners by cutting a line and lying in wait.**

- If they are available, radios are given to the OP to supplement wire communications.

- OPs should fire their weapons at the enemy only in self-defense or for suppression to cover their withdrawal. Their mission is to observe and report; they are isolated, and they do not have enough firepower to defeat even a small enemy force.

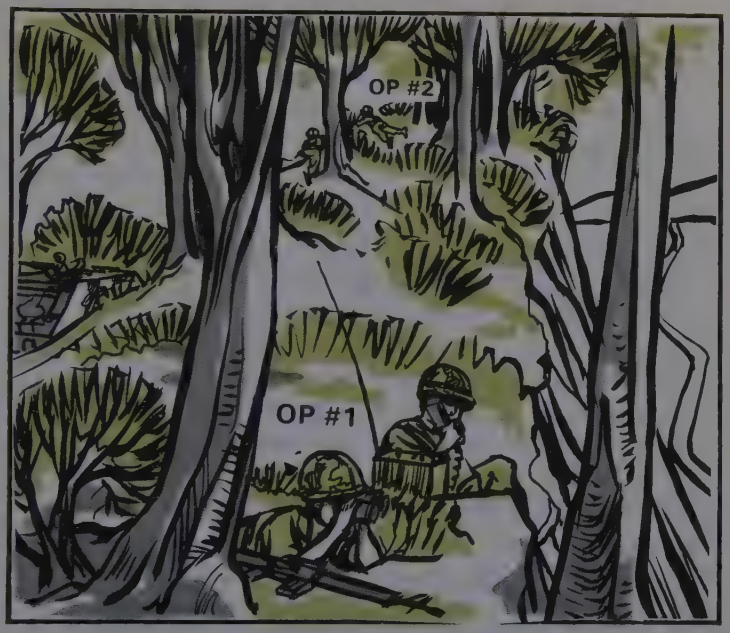
- An OP withdraws only on order. They can be withdrawn on a prearranged signal, at a prearranged time, or by order of the platoon leader if they have a radio or telephone.

- Fighting positions used for OPs are discussed in appendix G.

## MECHANIZED INFANTRY SQUAD OPs

In addition to the same type OPs described for light infantry, mechanized infantry squads may be required to put out OP/LPs that are not located close to any friendly units. When they receive this mission, the mech squad has the capability of establishing two OPs, or the entire squad can man one observation post. These OPs may be established when the platoon has the mission of providing security across a wide area or of protecting the flank of the company.

When the mechanized squad organizes into two OPs, the squad leader controls one OP, and a team leader controls the other. The carrier is located with the squad leader and is normally in a hide position behind his OP. In this case, the carrier team consists of the driver and TL/gunner with the maneuver team organizing into two elements. The squad leader dismounts the carrier radio for his OP and gives the squad radio (PRC-88) to the team leader of the second OP. The observation posts are located using the same considerations as discussed earlier (pg 306). However, since both OPs depend on the squad carrier when told to move, they are located close enough together so that they can rapidly rejoin the carrier.




The mechanized squad can also occupy one OP using the entire squad. Squad-size OPs will be frequently established when the platoon is given the mission of screening the flank of a larger force or providing security across a wide area. The squad leader will be told where to locate the OP and be given instructions on when and how to report, whether or not he is to engage any targets, and how he is to rejoin the platoon.

The way the squad leader occupies this type OP is dependent upon how long he expects to be there, cover and concealment at the specific location, and the instructions he received from the platoon leader. Based on these things he can:

**Move his carrier into a hull-down or hide position (depending on the terrain), dismount the maneuver team, and place his men in two-man positions from which they can observe. With this method the two-man positions are spread out to allow the squad to observe a larger area.**

**OR**

**Move the carrier into a hull-down position, dismount local security to each flank, and observe from the carrier.**

**OR**

**Move the carrier into a hull-down position, remain mounted, and observe from the carrier.**

## LISTENING POSTS

An LP is a position from which you listen and observe during periods of reduced visibility, as in darkness, smoke, or bad weather. The enemy may use different, more open avenues of approach during limited visibility conditions, therefore an OP may have to be moved to another position to serve as an LP at night. LPs are usually closer to defense positions than the OPs so they can be supported by fire and so the men can withdraw easily.

In a built-up area, LPs are usually outside and forward of the buildings so you can see and hear better. You may be given a night-vision device for use on your OP/LP. The enemy employs infiltrators against your defense at night, so a series of competent LP/OPs is your best security. LPs backed up by alert troops equipped with night-vision devices, and by snipers, can counter this infiltration.

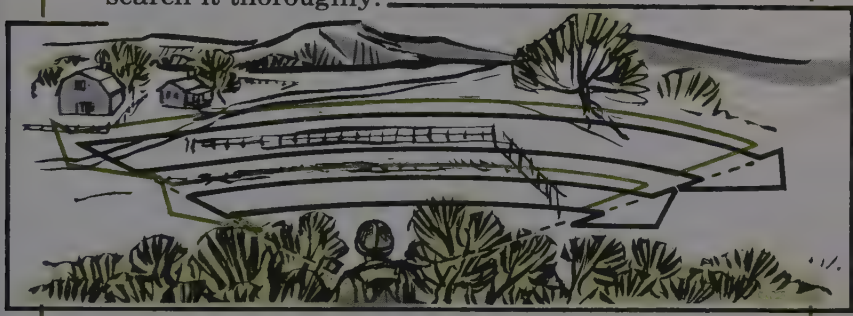
## HOW TO VISUALLY SEARCH (EYEBALL) TERRAIN

**Visually search terrain in two steps:**

**Step 1.** Make a quick, overall search for obvious targets and unnatural colors, outline, or movement.

- **Look straight down the center of the sector you are watching, starting from just in front of your position.**
- **Raise your eyes quickly to the maximum distance you wish to observe.**
- **If the sector is wide, further subdivide it, and search each sector from "near to far."**

**Step 2.** Next cover all areas, first searching the ground 50 meters deep, right to left. Then search in 50 meter overlapping strips, back and forth across the entire area. When you see a suspicious spot, search it thoroughly.



## WHAT TO REPORT

Report all information quickly, accurately, and completely. Make sure that the information which you report answers the questions **WHO, WHAT, WHERE,** and **WHEN.**

When observing, you will find it helpful to take notes and draw a sketch. The figure to the right depicts a preprinted form which is sometimes used to report an observation by members of an OP.

### Example of Report

**REPORT**

SIZE _____ 15 enemy

ACTIVITY _____ Moving south in column

LOCATION _____ Grid GL 931867, RJ 7 & 51

UNIT _____ Red patch on left shirt sleeve

TIME _____ Sighted at 2115

EQUIPMENT _____ 2 MG, 2 RCLR, and rifles

Cpl Jane Right 3d Bn

**SIZE.** The size of the enemy unit is the number of troops you see. For example, report 10 enemy infantrymen, not an infantry squad, or three enemy tanks, not an enemy tank platoon.

**ACTIVITY.** Report what you saw the enemy doing. For example, "emplacing antitank mines in the road."

**LOCATION.** Report where you saw the enemy. If you have a map, report the coordinates, e.g., GL 874461. If you don't have a map, relate the location to some key terrain feature; for example, on the Hann Road 200 meters south of the Kell River Bridge.

**UNIT.** The unit to which an enemy soldier belongs may be difficult to determine. Report bumper markings on vehicles. Some countries have particular uniforms, headgear, and colored tabs on uniforms which identify the type unit. The unit's action may indicate its type, or the kind of equipment observed may be peculiar to a certain type of unit. For example, a light, armored vehicle may indicate a reconnaissance unit.

**TIME.** Report the time when you saw the enemy activity, not the time you report it.

**EQUIPMENT.** Report all of the equipment the enemy is wearing or using. If you don't recognize an item of equipment or a type of vehicle, sketch it, and submit the sketch with your report.

# COMBAT SKILLS AND TECHNIQUES

The techniques described in this chapter supplement the tactical concepts discussed in earlier chapters. The proper application of these techniques will assist your squad in conducting tactical operations.

## SECTION I
## REQUESTING AND ADJUSTING INDIRECT FIRE

Every infantryman should be able to call for (and adjust) indirect fire on the target or close enough to have effect on the target. If the first rounds are not on target, an adjustment must be made.

A call for fire consists of:

- **Identification of observer.**
- **Method of fire/method of target location.**
- **Target location.**
- **Target description.**
- **Method of engagement.**
- **Method of control.**

## IDENTIFICATION OF OBSERVER

This establishes first contact with the fire direction center (FDC). The frequencies and callsigns of FDCs can be obtained from your platoon leader or FOs. **EXAMPLE: "J7J51, this is K2X81."**

## METHOD OF FIRE/METHOD OF TARGET LOCATION

This lets the FDC know what target location method will be used. Announce "ADJUST FIRE" if an adjustment is necessary before firing for effect. Announce "FIRE FOR EFFECT" if your target location is accurate enough for the first volley to have effect on the target. If you use grid coordinates to locate the target, nothing further is necessary. If you locate the target using polar coordinates, announce "POLAR." If you locate the target using the shift from a known point method, announce "SHIFT" followed by the known point designation. EXAMPLE: "ADJUST FIRE, SHIFT AG501."

## TARGET LOCATION

The location of the target may be given in any way understandable to the FDC. See the following pages for details on the grid, polar, and shift from a known point methods.

## TARGET DESCRIPTION

Try to be exact. A number such as "nine men in open" is better than "patrol in open."

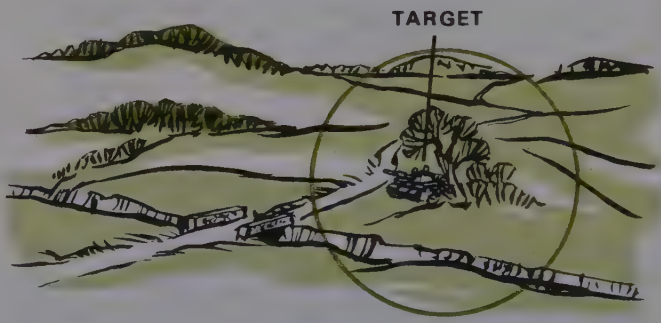
## METHOD OF ENGAGEMENT

This may be omitted if shell HE and fuze quick are appropriate for the target. If other ammunition types are desired, they are specified here. If the target is within 600 meters of friendly troops, "DANGER CLOSE" is announced.

## METHOD OF CONTROL

This is omitted unless it is necessary for you to control when the rounds are fired. Then "AT MY COMMAND" is announced.

## DETERMINING TARGET LOCATION

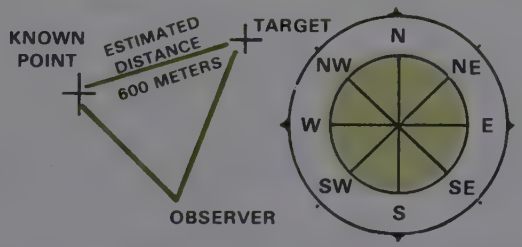



**Determine the grid coordinates (six digits) of the target by use of a map. EXAMPLE: "GRID 053202."**

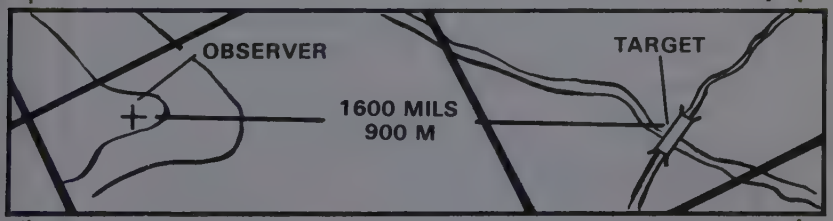
## SHIFT FROM A KNOWN POINT

From a target reference point (TRP) or any other location known to both observer and the FDC (e.g., a marking round), announce the shift as a direction from the known point to the new target, using mils, degrees, or cardinal directions and the straight line distance between the two targets.

**EXAMPLE: "NORTHEAST 600."**




## POLAR COORDINATES




If your (observer) location is known by the FDC, the target location may be reported by giving the distance from the observer to the target along with the OT direction. Example: Determine direction (azimuth), estimate or measure distance, then give the information – direction 1600, distance 900.

## SUBSEQUENT CORRECTIONS

The purpose of the adjustment is to move the center of impact to within 50 meters of the center of the target. Do this by sending the FDC subsequent corrections for lateral changes and range. The FDC can talk you through an adjustment if necessary. The burst is moved to, and kept on, the OT line in order to get positive range spottings.

When the range spotting is doubtful, request a lateral correction (to place the burst on the OT line).

Make range corrections to bracket the target between two successive rounds. Then split this bracket until you are sure that the next rounds will be within 50 meters of the target. You then call for--

### FIRE FOR EFFECT

Fire for effect is one or more rounds from each gun of the unit firing the fire mission. Dispersion of the guns will cause the rounds to saturate the target area with shell fragments. For subsequent corrections, use the shift-from-a-known-point method, using the location of the impact of the last round as the known point.

To end a fire mission, state **"End of mission"** and report the results of the fire for effect.

## SECTION II

# LIMITED VISIBILITY OPERATIONS/STANO EQUIPMENT

Fighting during periods of limited visibility must be planned for all combat operations. Combat during periods of limited visibility may be conducted as a matter of choice or it may be forced upon our units by enemy action or weather conditions. Limited visibility operations are generally conducted the same as daylight operations. However, in limited visibility, the problems of control, movement, navigation, and target detection/engagement are magnified.

SNOW/RAIN FOG OR HAZE

### CONSIDERATIONS

Limited visibility situations may occur anytime, requiring changes to tactics and techniques.

**Control of units becomes more difficult.**

Enemy forces will employ STANO devices; therefore, cover, concealment, and proper use of terrain retain their importance.

**Navigation is difficult.**

Friendly STANO devices may fail or be neutralized by enemy countermeasures.

**Acquisition and identification of enemy movement, positions, equipment, and personnel become more difficult.**

STORMS SAND/DUST NIGHT

## CONTROL

Perhaps the major impact of limited visibility is in the area of control. Squad and fire team leaders have to employ certain techniques that assist in the control of their men:

### MOVEMENT

- **Reduce intervals between personnel to maintain visual contact.**
- **Slow down.**
- **Use guides where possible.**
- **Use illumination when necessary.**
- **Use visual and audible signals such as flashlights, whistles, luminous tape, and pyrotechnics.**
- **Use STANO devices.**
- **Establish SOPs for periods of limited visibility.**

Squad and team leaders should move at the head of their elements.

## NAVIGATION

Use guides when the time and situation permit.

Use a paceman when dismounted and odometers when mounted to measure distance traveled.

Use compasses to maintain direction.

Use preplanned artillery spotting rounds as a navigational aid.

Use selected landmarks. When planning a move, distances and compass headings between landmarks should be preplanned.

## TARGET DETECTION

Use visual signals, vocal passwords, and recognition signals found in the current CEOI.

Maintain alert OP/LPs.

Use STANO devices.

## FIRE CONTROL

Use tracers to designate targets.

Use range cards where appropriate.

Use pyrotechnic signals to indicate lifting, shifting, or placing fires on suspected targets.

When the situation permits, use wire to control the application of the squad's firepower.

Use reference points/cardinal directions to aid in identifying new locations (targets).

## STANO
## EQUIPMENT AND ITS CAPABILITIES

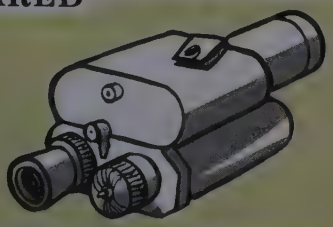
Historically, darkness has provided opposing forces concealment and has provided attacking units the opportunity to gain the element of surprise over defending units.

Threat forces conduct extensive night training and utilize various pieces of equipment designed to enhance their ability, while negating our ability to conduct night operations. We are equipped with similar types of sensor equipment such as surveillance, target acquisition, and night observation (STANO) devices.

**Here is some equipment that you may be dealing with in the conduct of your operations:**

### INFRARED

**Metascope**
**AN/PAS-6**



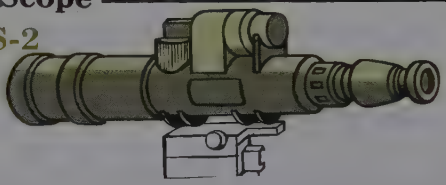
Six metascopes are presently authorized per mechanized infantry company; none are authorized in light infantry companies. They use an infrared light source that is detectable by other STANO devices. They are used for reading at close range, detecting, and signaling. They are handheld and have two separate sections, one transmitter and one receiver. They weigh 2 lbs and have an 8-hour battery life.

## Binoculars

17 in each company. Although their effectiveness is tied to available light, they are very effective in acquiring targets.

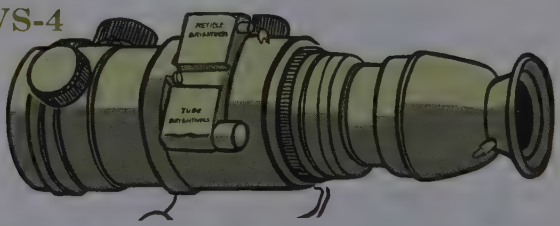
## Starlight Scope

### AN/PVS-2



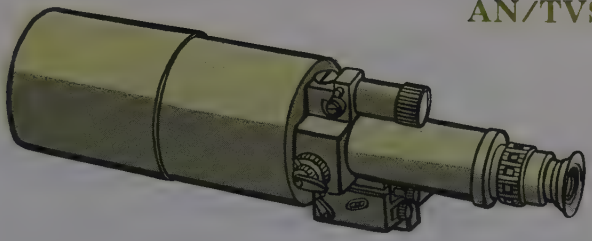
AN/PVS-2 equipment may be mounted on M60 machinegun or M16 rifle. Range 200 to 400 meters, depending on ambient light; 18 in mechanized infantry company and 24 in infantry company. Weighs 6 lbs., with 4x magnification. This model of the starlight scope replaces the AN/PVS-1.

### AN/PVS-4

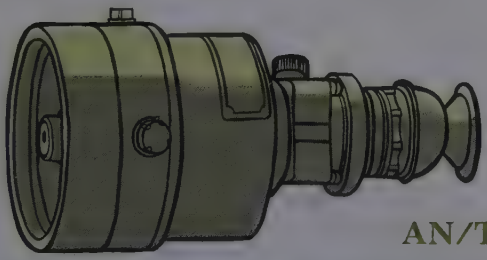


AN/PVS-4 is a small, lightweight telescope-type sight which will replace the AN/PVS-2. It can be mounted on the M14, M16, M60, M72A1 LAW, and M203 grenade launcher. The range for man-size targets is 400 to 600 meters. It weighs 3.7 pounds.

AN/TVS-2



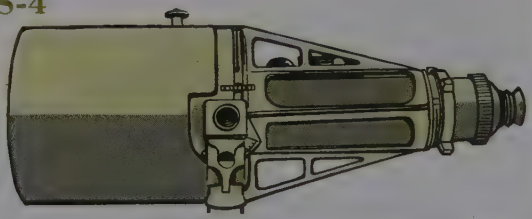
AN/TVS-2 - Crew-Served. May be mounted on .50 cal machineguns. Range 800 to 1100 meters, depending on ambient light. 21 in the mechanized infantry company. 7x magnification. 15 lbs. May be used with a tripod. One AN/TVS-2 is found in the infantry company.



AN/TVS-5

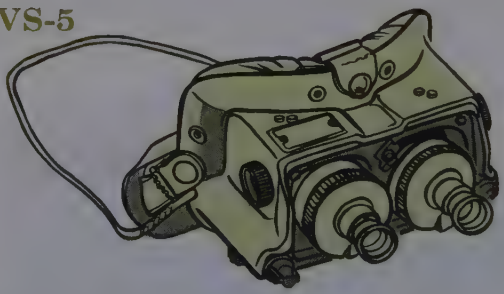
AN/TVS-5 is a lightweight, battery powered, electra-optical, telescope-type sight which will replace the AN/TVS-2. It may be mounted on the cal .50 machinegun, M139, 20-mm cannon, and the 106-mm RCLR. The range for vehicle-size targets is 1000-1200 meters. The sight will provide firing accuracy to equal that which can be achieved during daytime. It weighs 7 pounds 11 ounces.

## AN/TVS-4



Medium Range Night Observation Device (NOD). May be mounted on a mini-tripod or a surveyor's tripod. Range 1200-2000 meters depending on ambient light. One each mechanized and infantry company. 7x magnification. 34 lbs.

## AN/PVS-5



AN/PVS-5 Night Vision Goggle (NVG) is a lightweight, face-mounted, passive night vision device for performing tasks at night. It is designed for short range – close-in viewing for driving vehicles, reading maps, administering medical aid, maintenance and similar tasks. It weighs 1.9 pounds and has a range of 150 meters.

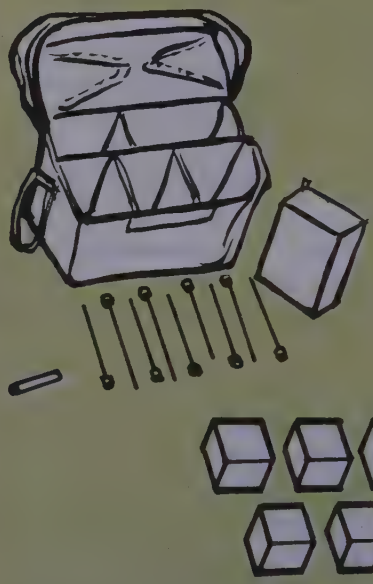
The starlight scopes are vastly improved by infrared light sources and detect infrared transmitters. Limitation - affected by terrain clutter, pyrotechnics, and poor definition. They are undetectable since they do not emit radiation. Operators may use devices for at least 6 hours without fatigue when short rest breaks (5 to 10 minutes) are given every 30 minutes. Preferred method is to use two operators and alternate every 30 minutes.

## REMOTE GROUND SENSORS (REMS)

### AN/SSO 151 (PSID)

The patrol seismic intrusion detectors (PSID) are equipped with six different frequencies. Each set consists of four transmitters with a 1-mile range and one receiver with earpiece. The PSIDs are designed to detect enemy patrols and, depending on terrain, may detect one man walking around a probe at 43 meters on a maximum sensitivity. Each unit uses two 9-volt batteries which last an average of 50 to 150 hours, depending on activation. The sets have a high rate of false alarms and are susceptible to jamming. Artillery fire, rain, vehicles, wind, and other activities may activate the sensors. PSIDs are being phased out and replaced by the platoon early warning system (PEWS).

## PLATOON EARLY WARNING SYSTEM (PEWS)



The platoon early warning system (PEWS) includes nine ground-emplanted sensors which transmit a radio or wire signal to a receiving set that indicates: movement in the area, whether movement is foot or vehicular, and which sensor is reporting. This device is ideal for monitoring avenues of approach which are masked by terrain features or limited visibility.

## SECTION III

# RELIEF IN PLACE AND PASSAGE OF LINES

A relief in place is the tactical replacement of one unit by another. Secrecy is essential in preparing and conducting a relief. Most reliefs are conducted at night. A relief is conducted as fast as control and secrecy permit. During relief, units are vulnerable to enemy action.

Squad leaders, as members of the reconnaissance party, should coordinate with the leaders of the squads which they will relieve. Get information about the terrain, sectors of fire, range cards, alternate and supplementary positions, locations of wire, mines, and other obstacles, equipment to be left on site, and recent enemy activity.

Squad leaders of the incoming and outgoing squads together direct the relief conducted by their squads. If the enemy attacks during the relief, and before the incoming leader has taken charge of the area, the outgoing squad leader conducts the defense with both old and new squads in position.

Guides from the outgoing squad will meet about half of the incoming squad at the squad release point and take these men to their positions. The outgoing half-squad is then guided to the rear by that same guide. The process is repeated until all weapons, equipment, and men are in position. The outgoing guides then return through the squad

release points to the platoon release point. Crew-served weapon crews will usually be attached to your squad for movement to or from positions.

Notify your platoon leader when your squad is in position. When all squads have done so, the squad leaders will be told that the incoming unit is in control.

To speed up the relief and reduce noise, certain equipment may be left on position by the outgoing unit. Excess ammunition, rations, water, fortifications material, and wire lines may be left on position. Additionally, range cards for crew-served weapons' locations should be left on position. Your platoon leader will decide what to leave in position.

## PASSAGE OF LINES

A unit can conduct a forward passage of lines to maintain the momentum of an attack, or rearward to start administrative functions. The following items will have been coordinated with the unit through which the squads must pass:

**Mutual recognition and reply signals to be given by the moving unit and the stationary unit. These can be hooded flashlights with colored filters, sounds, etc.**

**Routes through or around the stationary friendly unit.**

**Identification of points of passage through friendly units.**

**Actions if contact is made with the enemy during passage of lines.**

When a unit passes through another unit, the stationary unit must be notified when it has freedom to fire to its front. Squad leaders must count their men and report to the platoon leader as soon as the squad is clear and intact. This count will also help to prevent tag-along enemy infiltrators.

## SECTION IV
## AIR DEFENSE

The proliferation of enemy weapons also extends to his air arm. We cannot plan on fighting without considering the air threat. **(Our future enemy may be capable of controlling portions of the airspace over the battle area.)** If you can be seen from the air, his fighters will hit and kill you. To be effective under these conditions, the squad must make maximum use of cover, concealment, camouflage, dispersion, and early warning. It must also be proficient in the use of organic weapons in an air defense mode. **THE BEST PROTECTION AGAINST AIR ATTACK IS CONCEALMENT.** Enemy aircraft will attack any ground force whose location has been discovered by either ground or air reconnaissance. Air reconnaissance includes aircraft or drones using air photography or infrared line scan. At all times give a high priority to concealment. The sighting of a few soldiers can lead to the disclosure of a whole unit, even if it is well concealed.

Air attacks will be swift and often unexpected; therefore, early warning of probable attack is necessary to give troops an opportunity to take

cover. This warning may be passed through normal command channels, or given by local OPs or air sentries. All OPs should have air watch included in their duties, and alertness for enemy aircraft required as part of normal observation. They will not always have a good view of the air around them, in which case a special air guard must be detailed. All vehicles should have an air guard detailed. High-speed, low-flying aircraft are difficult to identify.

Troops must be trained to be proficient in quick aircraft recognition. Hostile low-flying aircraft may appear suddenly from behind low hills, belts of trees, and haze. To gain surprise, they will try to attack you with the sun behind them.

## ACTION WHEN ATTACKED

The alarm must be given immediately if troops working in the open are to have any chance of taking cover. This warning is the responsibility of all sentries in the area and will be passed by whistle, voice, radio, or any other method. The whistle signal is a series of short blasts. When the alarm is given, all troops except those in close contact with the enemy must immediately take cover, if possible, below ground level, and remain there until the all-clear is given.

Evasive maneuver is the initial reaction of mounted units under air attack. Each vehicle turns away from an airplane's axis of attack and seeks cover and concealment. They then engage attacking aircraft as appropriate.

## ENGAGEMENT OF HOSTILE AIRCRAFT

Rules for engaging aircraft will vary, as established by higher commanders. The following rules of engagement are a guide to normal practice:

The first requirement of engagement is to positively identify the aircraft as hostile. Each soldier must be trained to recognize hostile and friendly aircraft.

**Fire should be opened only on order of the squad leader. Whenever possible, fire should be controlled by the platoon leader.**

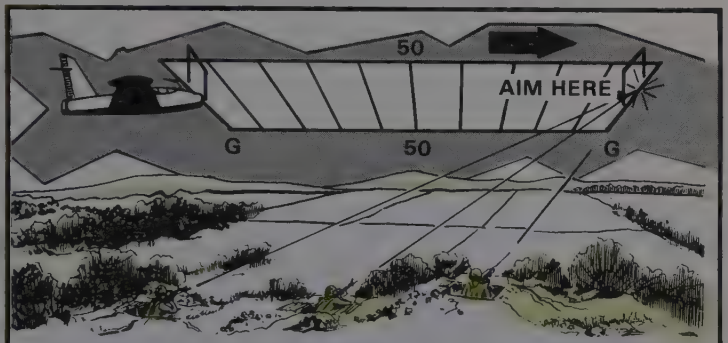
Commanders may impose restrictions on air defense fires due to friendly aircraft in the area or the need to hide a unit.

**If aircraft attack your unit, return fire. Otherwise, hold fire to prevent disclosing the unit's location.**

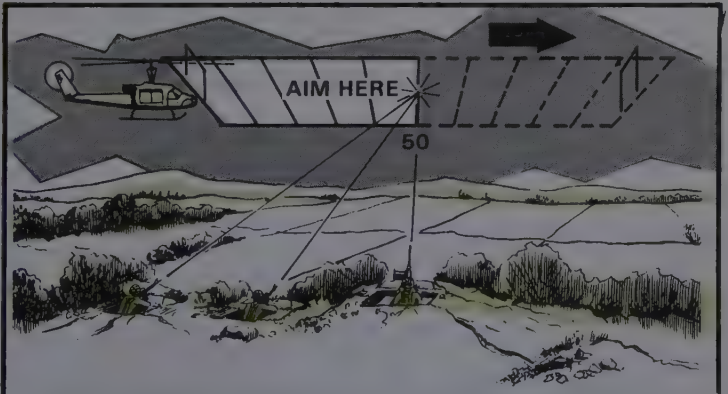
If supporting air defense artillery crews engage the aircraft, infantry squads may also engage.

**Small arms fire (caliber .50 and smaller) may be returned against attacking aircraft during or after the initial attack. Soldiers should not try to track aircraft, but should fire in front of the aircraft so it will fly through the fire.**

Because not everyone will be able to hit the aiming point the aircraft will have to fly through a large pattern and will be hit.



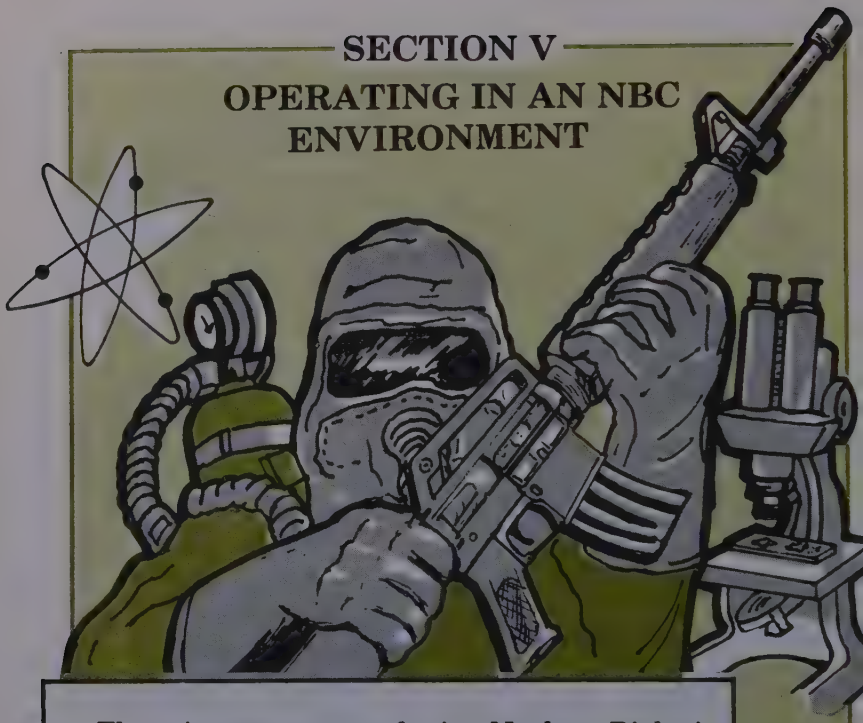

**HIGH-PERFORMANCE AIRCRAFT.** When engaging jet aircraft, aim and fire all weapons at a point one football field length in front of the airplane.




**LOW-PERFORMANCE AIRCRAFT.** When engaging helicopters or propeller-driven aircraft, aim and fire all weapons at a point half a football field length in front of the airplane.

# SECTION V

## OPERATING IN AN NBC ENVIRONMENT



The primary purpose of using Nuclear, Biological, or Chemical (NBC) weapons on the battlefield is to produce casualties and destroy or disable equipment. This section discusses protective measures required in the NBC environment. Included are active protective measures to neutralize enemy weapons capabilities and his intelligence effort, and passive protective measures taken before, during, and after an action to prevent detection or to minimize the effect of enemy attack.

# PROTECTIVE MEASURES IN NUCLEAR WARFARE

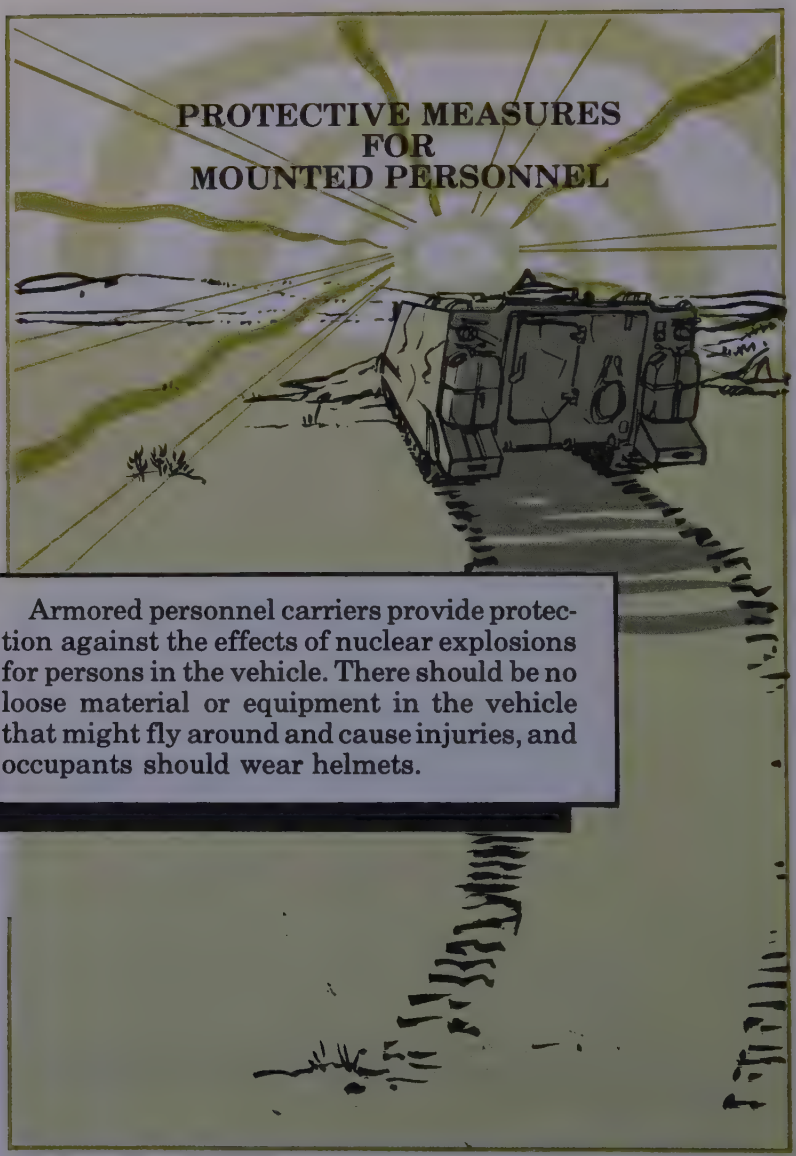
Nuclear detonations have three primary casualty-producing effects – BLAST, THERMAL RADIATION **(heat and light),** and NUCLEAR RADIATION.

Blast from the shock wave can collapse buildings and fighting positions, hurl debris, and create high winds, all of which can injure and kill. The flash heat of thermal radiation causes casualties by intense burning. Nuclear radiation will injure and kill by destruction of body tissue.

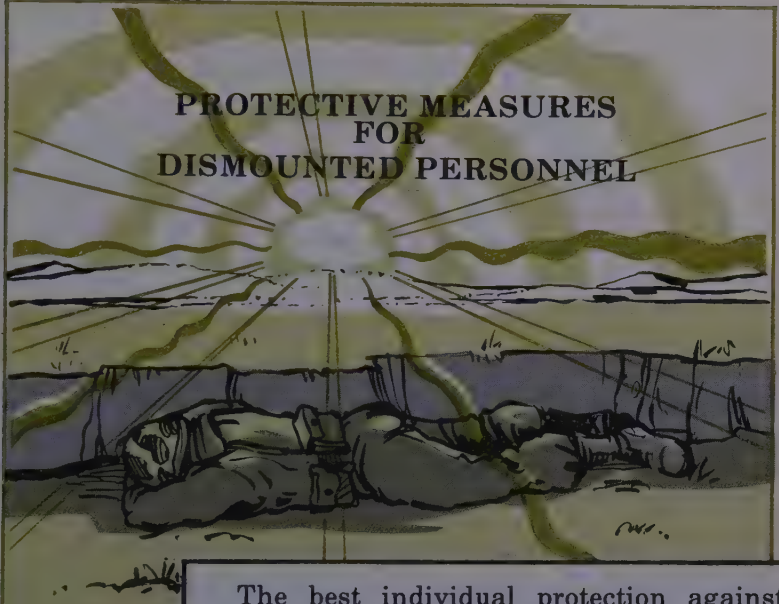
## GENERAL PROTECTIVE MEASURES

**Training.** The nuclear weapon, although a tremendously destructive military device, is not a weapon against which there is no defense. This fact must be firmly established early in the training of any unit. The more each soldier knows about weapons' capabilities, the more effective he will be on the nuclear battlefield and the greater will be his chances for survival. Training must stress the interrelation of discipline, camouflage, cover, concealment, dispersion, and immediate reaction for battlefield survival. **(See FM 21-40 for small unit procedures, and FM 21-41 for individual protective measures.)**

# PROTECTIVE MEASURES FOR MOUNTED PERSONNEL



Armored personnel carriers provide protection against the effects of nuclear explosions for persons in the vehicle. There should be no loose material or equipment in the vehicle that might fly around and cause injuries, and occupants should wear helmets.




The best individual protection against nuclear attack is to dig in. Defensive positions are prepared when the tactical situation permits. The immediate reflex action of a person caught in the open at the time of a nuclear explosion should be to hit the ground or bottom of a fighting position facing away from the burst. Close eyes and protect exposed skin from the heat rays as much as possible. Remain down until the blast wave passes, then check for injury and equipment damage and prepare to continue the mission.

## PROTECTION AGAINST FALLOUT

A surface or sub-surface nuclear explosion causes the radioactive hazard of fallout. The explosion lifts tremendous quantities of earth into the nuclear cloud formed at the time of detonation. This material is highly radioactive and particles are carried downwind and eventually fall back to earth. These particles are known as fallout. The lingering hazards from fallout may cover many square miles. The presence and intensity of residual radiation is determined by radiological monitoring and survey. Procedures for radiological monitoring and survey must be specified in unit SOPs and are based on FM 3-12 and FM 3-22. If fallout is predicted for your unit's area, the initial reaction will be to button up or dig in and monitor radiation levels. Once residual radiation has been detected, the squad continues its mission, relocating in its assigned sector to minimize radiation exposure, if required, and reports the presence of radioactivity to the platoon leader. If it is necessary to remain in the fallout area, the protective measures against the other effects discussed previously will be used against fallout. Armored vehicles must be buttoned up completely with the crews remaining inside.

Shelters should have overhead cover. The period of time a unit may remain in a contaminated area

depends on the total dose of radiation the troops can receive and still remain effective, the intensity of the radiation, and the protection available. The amount of time spent away from cover should be kept to a minimum.

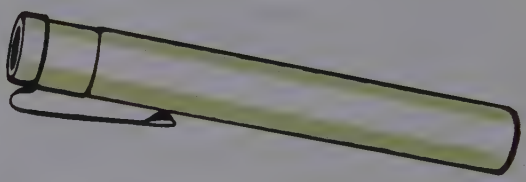
## FALLOUT PROTECTION RULES

1. **When possible, avoid contaminated areas.**
2. **Wait for fallout to decay. A 7-hour wait will allow a 100 rad reading to drop to a 10 rad reading.**
3. **Keep track of how long your squad is exposed and report this to your platoon leader.**
4. **When fallout is predicted, dig in or button up. Overhead cover is a must.**

## MONITORING RADIATION LEVELS

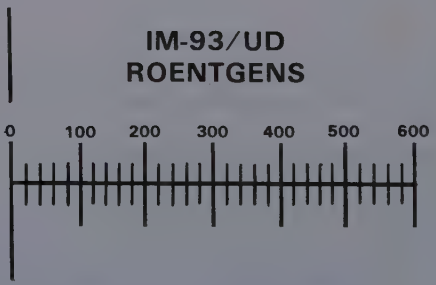
When operating in a nuclear environment, one of the squad leader's duties is to closely monitor the amount of radiation received by his squad. When operating as part of a larger unit, this task may be accomplished for you. However, you must be prepared to accomplish this if necessary.

## DOSIMETER



The IM-93UD Dosimeter may be issued to you to monitor the radiation received by your squad. It is small (about the size of a pen), light, and simple to operate.

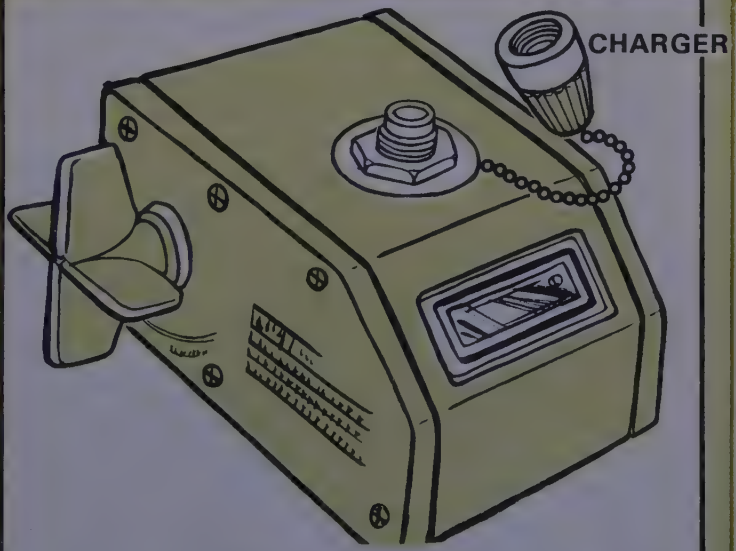
## DOSIMETER SCALE




To read the dosimeter and determine the radiation dosage received by your squad, remove the dust cover and hold the dosimeter to the light. Read the scale and report the reading to the platoon leader.

Keep the dust cover on the dosimeter unless you are taking a reading. If the dust cover is lost, use some expedient such as tape to close the open end.

The dosimeter must be charged at least every 2 or 3 days of use (preferably every day) or when the dosage rate reaches or exceeds 500 rads on the scale. Recharging times normally are designated by the unit SOP.




The radiac detector chargers PP-1578/PD and PP-1578A/PD are used to charge the dosimeter. One charger will probably be issued to your platoon.

**DOSIMETER ON THE CHARGER**

To charge your dosimeter, remove the dust cover and place the dosimeter on the charger. Using a flashlight or other strong light source to illuminate the scale on the dosimeter, turn the handle on the charger until the indicator on the dosimeter is set at zero.

## PROTECTION AGAINST CHEMICAL AND BIOLOGICAL ATTACK

Squads must train to apply protective measures against toxic chemical and biological attack. Squad SOPs should include actions to be taken in the event of such attacks. Protective measures should provide for an adequate warning system, use of individual and unit protective equipment, facilities for prompt decontamination of individuals, equipment, and supplies, and prompt treatment of casualties.

**Protective Equipment.** The individual's primary protection against toxic chemical attack is his protective mask. The mask protects against inhalation of toxic chemical and biological agents.

Protection against liquid chemical agents requires the wearing of chemical protective clothing as well as the mask. Individual protection is provided by wearing the mask with hood, either one set of chemical protective overgarments or chemical protective shirt and trouser liners, chemical protective socks with chemical resistant boots and chemical protective gloves.

**Mission-Oriented Protective Posture (MOPP).** Once chemical agents have been employed or while the threat of enemy chemical attack exists, the unit commander decides whether to keep all personnel, or only a certain number, masked and in chemical protective clothing. This decision, called the mission-oriented protective posture, is based on the chemical threat, mission of the unit, type of activity required, and temperature. Whenever possible, the commander specifies the degree of protection before the mission. He may subsequently direct that the protection be modified, according to his estimate of the situation and the operational limitations.

The MOPP level directed by your unit commander will determine what equipment you wear/use and what precautionary measures you employ. MOPP procedures are normally contained in unit SOPs. The chart below is an example of what protective clothing/equipment could be required under various MOPP conditions.

| MOPP LEVEL | CLOTHING |
|---|---|
| 1 | Fatigues with protective mask. |
| 2 | Fatigues with protective mask, hood, gloves, and body armor. |
| 3 | Overgarment over fatigues or fatigues over protective liner. |
| 4 | Level 3 with addition of mask, hood, gloves, and body armor. |

**Biological Attack.** Definite information on the employment of biological agents by the enemy is disseminated from higher headquarters. Each squad must be alert to the danger and report promptly the unusual occurrence of diseases. The best local defense against biological warfare is strict enforcement of all preventive medical and sanitation measures and high standards of personal hygiene.

## DECONTAMINATION

Chemical, biological, or radiological (**nuclear**) contamination may cause casualties; restrict the effective use of terrain, buildings, or material; or hinder operations. A decontamination operation may be conducted to reduce the overall hazard from NBC contamination to allow the mission to be accomplished. The decision of a unit commander to carry out a decontamination operation will be based on the effect it will have on the unit mission. The expense in materials, time, and labor involved in the decontamination operation must be considered and compared with the time lost to the unit mission in avoiding or bypassing the contamination. **(These decisions will be made by senior commanders, but ultimately will be implemented at platoon and squad level.)**

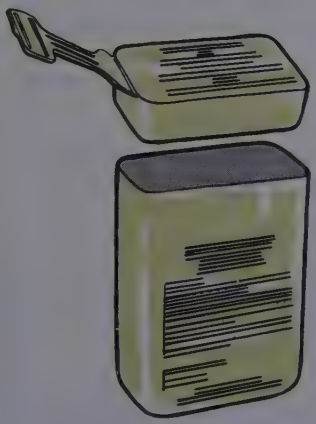
## RADIOLOGICAL DECONTAMINATION

Nuclear fallout is a solid material and will not be absorbed by an individual or his equipment. The most rapid method of decontaminating individuals and individual equipment is by brushing off and washing off.

The same procedure is used for decontaminating vehicles and crew-served weapons. Loose particles should be brushed off and the vehicle should be cleaned by washing or scrubbing with steam or water and detergents.

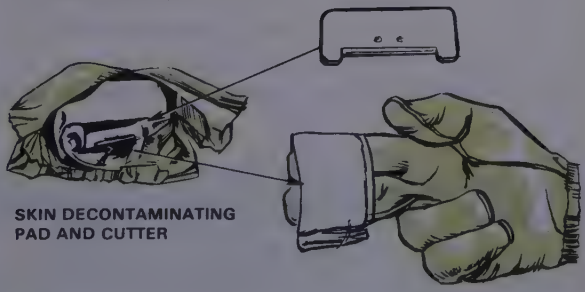
# CHEMICAL DECONTAMINATION

## The ABC-M13 Individual Decontamination Kit



KIT CONTAINER WITH PLASTIC LID

TWO CLOTH DECONTAMINATING BAGS WITH DYE CAPSULE INSIDE



SKIN DECONTAMINATING PAD AND CUTTER

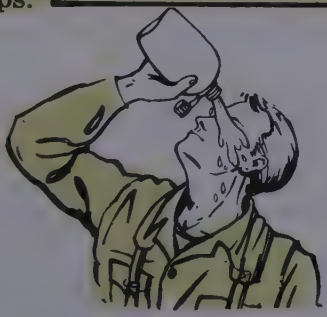
The individual M13 kit is used by the soldier for decontamination of his person, clothing, and equipment. The M258 Skin Decontaminating kit is being issued to augment the M13 kit.

The skin pad removes liquid chemical contamination from the skin by absorption. The cloth bags neutralize small droplets and vapors of chemical agents on clothing and equipment by chemical action. A dye capsule in the bag, when crushed and kneaded into the chemicals in the bag, indicates liquid chemical agent contamination if a red to brownish-red color develops.

**WARNING:** Do not allow any of the powder from the skin pad or cloth bag to enter the eyes or mouth. Wear protective mask and gloves when using the cloth bag. After decontaminating the hands, wear protective gloves when using the cloth bags for decontaminating clothing and equipment.

**Individual Decontamination.**

Chemical agents require additional measures. If your eyes or face have been contaminated (for example, from a spray attack), you should first obtain overhead cover (if possible) and then follow these steps:



1. **Flush your eyes with water from your canteen.**

2. **Clean your skin by using the skin pad from the M13 individual chemical decontamination kit. If necessary, use the M13 skin pad to decontaminate the inside of the protective mask that comes in contact with the skin.**

3. **If skin other than the face has been contaminated, decontaminate with the skin pad from the M13 kit or soap and water.**

## Decontamination of Individual Equipment

**Protective Mask.** The external parts of the mask are decontaminated with the cloth bag from the M13 kit; the interior surface of the mask is decontaminated with the skin pad from the M13 kit.

**Clothing.** Contaminated clothing is decontaminated by using the cloth bag from the M13 kit. The cutter from the M13 kit is used to remove spots larger than ⅛-inch from the clothing.

**Boots.** Treat with vesicant gas-resistant leather dressing after washing with soap and water.

**Individual Metal Equipment.** Helmets and entrenching tools are decontaminated with DS2, soapy water, or the cloth bag from the M13 kit.

**Individual Weapons.** Decontaminate with the cloth bag from the M13 kit. After decontamination, weapons are disassembled, washed in soapy water, rinsed, dried, and oiled to prevent corrosion.

**Web Equipment.** If lightly contaminated, decontaminate as you would individual equipment. If heavily contaminated, it must be destroyed and replaced.

## Decontamination of Unit Equipment

Vehicles that are lightly contaminated may be decontaminated by airing. Each tactical vehicle is authorized one M11 decontamination apparatus that contains 1 1/3-quarts of DS2 decontaminating agent. It is used to decontaminate those parts of the vehicle that must be touched, such as controls.

The complete decontamination of the vehicle will be accomplished using DS2, soapy water, solvents, or slurry. These agents will be issued by the platoon sergeant.

Crew-served weapons are decontaminated using DS2, soapy water, solvents, or slurry. Ammunition is decontaminated with DS2 solution, wiped with gasoline-soaked rags, and then dried. If DS2 is not available, ammunition should be washed in cool, soapy water, then dried thoroughly. After decontamination, weapons are disassembled, washed, rinsed, dried, and oiled to prevent corrosion.

Optical instruments are decontaminated by blotting with rags, wiping with lens cleaning solvent, and then allowing them to dry.

Communications equipment is decontaminated by airing, weathering, or hot air (if available). The metal parts of field telephones and radios are decontaminated with DS2 and then wiped with rags.

## BIOLOGICAL DECONTAMINATION

Decontaminate vehicles using any of the following methods:

1. Apply detrochlorite. Leave on 30 minutes, then remove by washing with a stream of water.
2. Wash with detergent and high-pressure water stream.
3. Steam clean, using detergent.

Weapons. Use detrochlorite, household bleach solution, or soap and water. Dry and lubricate working parts and surfaces after decontamination.

Clothing and instruments. Use vapors of ETD-florinated hydrocarbon mixture in plastic (polyethylene) bag. Leave in bag 8 hours, then air for 1 hour.

**Decontamination Measures.** FM 21-40 and TM 3-220 contain detailed procedures for decontamination of individuals, equipment, and vehicles.

# SECTION VI
# OBSTACLES

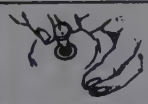
## PART ONE

## STANDARD MINES

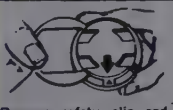
Minefields assist materially in the conduct of security, defense, retrograde, and offensive operations by reducing the mobility of the enemy. Mines supplement natural obstacles and enhance the obstacle value of existing terrain and other artificial obstacles. Until neutralized, installed mines are a hazard to both enemy and friendly forces. Minefields supplement manned weapons and, after installation, add to the user's combat power without additional troops.

## M14 BLAST ANTIPERSONNEL MINE

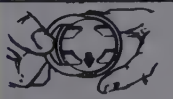
Wt ..... 3 1/3 oz.
Explosive ..1 oz. TETRYL
Fuze ..... integral (with Belleville Spring)
Functioning 20 to 35 lb.
Penetrate Boot & Foot



Unscrew shipping plug from bottom of mine. Turn pressure plate to ARMED position with arming tool.



Remove safety clip and check for malfunctioning.



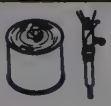
Replace safety clip.

Screw detonator into detonator well.

Bury mine and remove safety clip.

TO BURY: Pressure plate should be slightly above ground level.
TO DISARM: Insert safety clip and remove detonator.
CAUTION: Repeated turning of arming dial may cause excessive wear.

## M16A1 BOUNDING ANTIPERSONNEL MINES



Wt ..... 8.25 lb.
Projectiles ..... Steel
Fuze ..... M605 (Combination)
Functioning:
Pressure ... 8 to 20 lbs
Pull ..... 3 to 10 lbs
Bounding Ht .6~1.2m
Casualty radius..... 30m

Remove shipping plug and screw in fuze.

Pressure installation

Tripwire installation

Attach tripwires — first to anchor, then to pull ring.

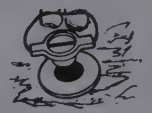
Remove locking safety pin first. The interlocking pins should fall free. Then remove positive safety.

TO DISARM: Reverse arming procedure.

## M25 BLAST ANTIPERSONNEL MINE (ELSIE)

Wt ..... 2 3/4 oz.
Explosive ... 1/3 oz. shape charge
Fuze .....integral (w/ball release)
Functioning.. 14 to 26 lbs
Penetrate Boot & Foot

Push mine into ground. Keep dust cap in place. If ground is hard, dig hole with bayonet.



Remove dust cap.

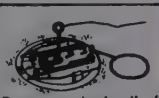
Insert charge.

Remove safety clip.

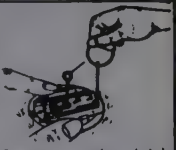
TO DISARM: Reverse arming procedure.

## M26 ANTIPERSONNEL MINE

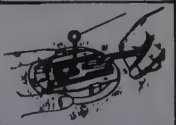
Wt .....2.2 LBS
Projectiles ..... Pellets
Fuze ..... integral
Functioning:
Pressure .... 14—28 lbs
Pull ..... 4—8 lbs
Bounding Ht ..... 3m
Casualty Radius ..... 17m



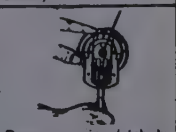
Remove arming handle. (If tripwire is to be used install trip-lever; attach slack wire to lever; and) place mine in ground flush with top of ground.



Remove arming latch retaining pin.



Attach arming handle to lugs on arming latch, rotate the cover clockwise until it comes to a positive stop (the arrow will point to the red letter "A" armed).



Remove arming latch by pulling straight out with the arming handle.

TO DISARM: Reverse arming procedure.

## M18A1 FRAGMENTATION ANTIPERSONNEL MINE

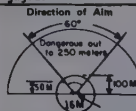
Wt ..... 3.5 lbs.
Explosive ..... 1.5 lb. C4
Projectiles ..... 700 (steel balls)
Equipment: One electric cap 30m firing wire per mine. One electric firing device per mine. One Tester per 6 mines.

TEST CIRCUIT: Mate firing device, circuit tester and blasting cap. Depress handle. Light should show in window. Separate test components.

AIMING: IN AIMING THE M18A1 WHEN USING THE SLIT TYPE PEEP SIGHT, AIM THE MINE AT AN INDIVIDUAL'S HEAD WHEN STANDING 45M FROM THE MINE. WHEN USING THE KNIFE EDGE SIGHT, AIM THE MINE AT AN INDIVIDUAL'S FEET WHEN STANDING 50M FROM THE MINE.

Remove shipping plug-priming adapter, insert blasting cap and screw into either cap well.

Unroll firing wire and connect directly to firing device with safety engaged.




FIRING POSITION: A minimum of 16 meters from rear of mine to fox hole. Friendly troops at side and rear should be under cover at a minimum of 100 meters.

TO FIRE: Disengage safety bail and depress handle.

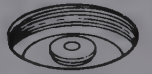
TO DISARM: Reverse arming procedure.

## M15 HEAVY ANTITANK MINES

Wt ..... 30 lbs.
Explosive ..... 22 lbs.
Fuze ..... M603
Secondary fuze wells ... 2
Functioning:
300 to 400 lbs.

Remove plug and inspect fuze well.

Inspect fuze and remove safety.



Insert fuze

Replace plug with dial in safe position.

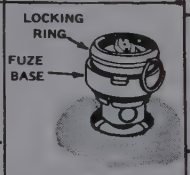
Turn dial to ARMED.

TO BURY: Put mine in hole with pressure plate at or slightly above ground level.

TO DISARM: Reverse arming procedure.

## M15 ANTITANK MINE USED WITH M608 FUZE

Functioning ....200-350 lbs for 250-450 milliseconds.
Resistant to blast type countermeasures.




Remove plug and inspect fuze well. Insure fuze is in SAFE position. Thread fuze into mine.....HAND TIGHT

Hold fuze to prevent rotating, turn locking ring down until it locks against pressure plate.

Place mine in hole and remove pull pin from fuze.

Turn dial from SAFE to ARMED.

TO DISARM: Reverse procedure except DO NOT replace pull pin.

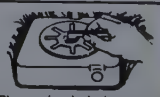
## M19 PLASTIC HEAVY ANTITANK MINE

Wt ..... 28 lbs.
Explosive ..... 21 lbs.
Fuze .....M606 integral (with pressure plate)
Secondary fuze wells ... 2
Functioning:
350 to 500 lbs.

Remove pressure plate-fuze.

Remove shipping plug; check position of striker (offset). Remove safety fork, then turn dial to ARMED position. Check position of striker (center). Turn to SAFE and replace safety fork.

Screw threaded detonator into detonator well.



Place mine in hole, remove safety fork; and turn dial to ARMED.

Complete camouflage

TO BURY: Put mine in hole with pressure plate at or slightly above ground level.

TO DISARM: Reverse arming procedure.

## M21 METALLIC (KILLER) ANTITANK MINE

Wt ..... 18 lbs.
Explosive ..... 10.5 lbs.
Fuze ..... M607
Functioning ..... 290 lbs.
(Pressure or. pressure ring or 20° deflection of tilt rod)

Remove closing plug, insert M120 booster in bottom, and replace closing plug.

Remove closure assembly from fuze.

Remove shipping plug from mine and screw in fuze, then screw in tilt rod extension.

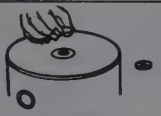
Bury mine

Remove safety (pull ring assembly) and complete camouflage.

For pressure type mine bury with fuze cap flush with ground surface.
Tilt Rod-mines should be seated firmly in snug-fitting hole. Most effective in tall brush or grass.
TO DISARM: Reverse arming procedure.

## M21 ANTITANK MINE USED WITH M612 FUZE

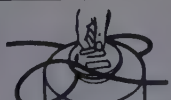
Has two 2.7m pneumatic leads, safety latch and arming lever.



Remove closing plug, insert M120 booster.

Remove shipping plug from mine. Screw in fuze.

Bury mine. Cross and extend hoses.

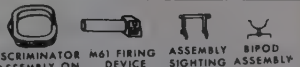


Lift safety latch and turn arming lever to ARMED. Recross hoses.

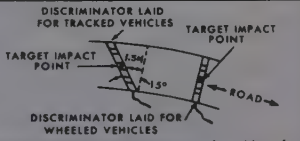
Complete camouflage.

Timer provides a 30 ± 5 minute safe separation period. Both leads must be depressed for initiation.
TO DISARM: Reverse arming procedure.

## M24 OFF-ROUTE ANTITANK MINE

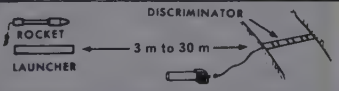



Remove above items from accessories pouch. Insert batteries (issued separately) in firing device.




Unreel discriminator starting at far side of road (perpendicular to edge for wheeled vehicles; about 15° from perpendicular for tracked vehicles).

Attach discriminator wire to DETECTOR of firing device (toggle switch on SAFE). Stand on two brown marks on discriminator nearest firing device. If lamp lights, circuit is good, otherwise, discard system.

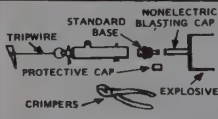



Disconnect discriminator wire from firing device. Remove launcher from dispenser pouch and place in position. Remove packing blocks, push rocket forward to safety band, and remove band. Depress ejection pin and push rocket back into launcher until contact ring is exposed at base. Grounding clip must be connected. Remove tagged shorting clip and push rocket back into launcher. Tape plastic covers over ends of launcher.

Position launcher on bipod assembly or mound of earth. Mount sighting assembly and sight along discriminator to target impact point about 1m above road (soldier's belt buckle.) To aim, move launcher, not sight. Fill poucher with dirt, lay over launcher, recheck sight, remove sight, re-connect discriminator wire to firing device (light out), connect rocket cable to firing device, and push toggle switch to ARM. The system is now armed and will fire when pressure is applied to the discriminator. See TM 9—1345—200.

## M1
## PULL FIRING DEVICE

INITIATING ACTION: .3 to 5 lb pull on tripwire.




Remove protective cap from standard base and crimp on nonelectric blasting cap. Attach firing device assembly to charge. Attach anchored tripwire.

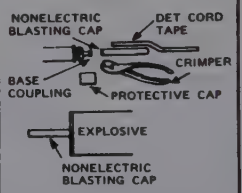
TO ARM: Remove locking safety pin first, and positive safety pin last.

TO DISARM: Insert nail, length of wire or original safety pin in positive safety pin hole first. Then insert similar pin in locking safety pin hole. Cut tripwire, and separate firing device and expolsive. Unscrew standard base.

The M1 pull firing device can be used as an antihandling device on the M15 or M19 AT mines. The arming procedures are the same as above. The device is employed in the side fuze well and a tripwire attached from the M1 to a stake secured underground near the mine.

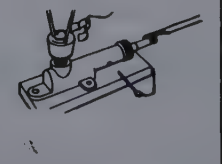
## M1A1
## PRESSURE FIRING DEVICE

Initiating pressure: 10 lbs or more.




Remove protective cap from base and crimp on nonelectric blasting cap. Assemble det cord, nonelectric blasting cap, and firing device.

TO ARM: Remove safety clip. Then positive safety pin.



TO DISARM: Insert wire, nail, original pin in positive safety hole. Replace safety clip, if availfable. Unscrew base assembly from firing device.

## M3
## PULL-RELEASE FIRING DEVICE

Remove protective cap and crimp on a nonelectric blasting cap. Attach firing device assembly to anchored charge (must be firm enough to withstand pull of at least 6-10 lbs. pull on tripwire). Put free end of anchored tripwire in hole in winch with knurled knob, draw up tripwire until locking safety is pulled into wide part of safety pin hole.

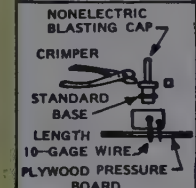
TO ARM: With cord, remove small cotter pin from locking safety pin, and withdraw locking safety pin. If it does not remove easily, adjust winch winding. With cord, pull out positive safety pin.

TO DISARM: THE M3 IS DANGEROUS TO DISARM. IT SHOULD BE BLOWN IN PLACE.

NOTE:
If the device must be disarmed proceed as follows: Insert length of wire, nail or original pin in positive safety pin hole first. Then insert length of wire, nail or original locking pin in locking pin hole. Disassemble tripwire, firing device and explosive.

## M5 PRESSURE-RELEASE FIRING DEVICE

INITIATING ACTION: Lifting 1.59cm or removing restraining weight (5lb or more).

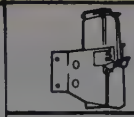



Insert length of 10-gage wire in interceptor hole and holding release plate down, remove safety pin. Replace safety pin with length of No. 18 wire. Assemble cap, firing device and mine.

TO ARM: Remove thin wire (locking safety) and then heavy wire (positive safety) from interceptor hole. FOLLOW ARMING PROCEDURE CAREFULLY.

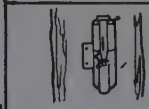
TO DISARM: Insert length of heavy gage wire in interceptor hole. Bend wire to prevent dropping out. Proceed carefully, as the slightest disturbance of restraining weight may detonate mine. Disassemble firing device and mine.

## M49A1 TRIP FLARE

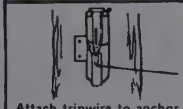


Burning period .... 55 to 70 sec
Illumination radius ..... 300m

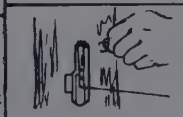
Initiated by taut or loose tripwire.



Attach flare to post, tree, etc.

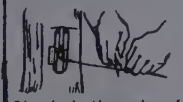


Attach tripwire to anchor, then to trigger. Pull trigger to vertical position and secure.



TO ARM: Remove safety clip.

TO DISARM: Insert safety pin.



Check both ends of tripwire and cut near trigger.

WARNING: Never look directly at burning flare. Note: For loose tripwire initiation, attach tripwire to eye of safety pin.

## HASTY PROTECTIVE MINING

1. Hasty protective minefields are generally laid by small unit commanders at outposts, work sites, bivouac areas, or ambush sites. They may also supplement manned weapons, prevent tactical surprise, or give early warning of enemy advance.
2. Mines should be readily detectable and removable and be sited across likely avenues of approach within range of organic weapons and visual observation.
3. Depending on the situation, the field should be marked by signs or fences or have guards to warn friendly troops.
4. The hasty protective minefield should be recorded on DA Form 1355-1 (page 8). If not available a form should be improvised. The unit that installs the field should warn adjacent units if possible, and inform higher headquarters. This unit must remove the field before leaving the area or transfer the responsibility to the relieving unit commander.

## RULES FOR A STANDARD PATTERN MINEFIELD

TRIPWIRES:

1. No tripwires in the IOE.
2. Tripwires employed on the enemy side of the strip only.
3. No more than two tripwires per cluster.
4. No more than one tripwire mine per cluster.
5. Tripwires no closer than 2 meters from any safety lane.
6. Tripwires no closer than every third cluster.

CLUSTER COMPOSITION:

1. No more than 5 mines per cluster.
2. No more than 1 AT mine per cluster.
3. First cluster always on enemy side of strip.

## PART TWO

# HASTY PROTECTIVE MINING

Your platoon has been tasked to install a hasty protective minefield – a minefield employed and constructed by a unit for its own close-in protection that will be taken up when the unit moves. The platoon leader has given this mission to your squad along with guidance where the mines are to be placed. You have been provided three antitank mines (M21), five antipersonnel mines (M16A1) with tripwires, and one Claymore (M18A1) from the company basic load.

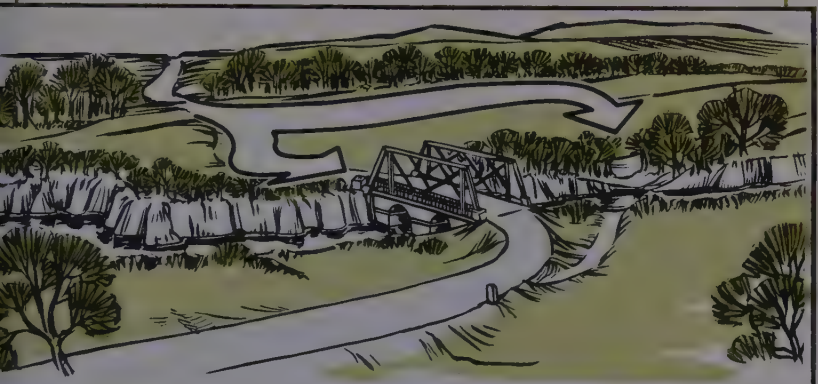
**FOR TRAINING**

Plastic versions of each mine depicted are available through TASO in either an inert or a casualty-assessing mode.

**NOTES**

1. Use only metallic mines in protective minefields. If the mines cannot be found when the field is removed by hand, use a metallic mine detector (AN/PSS-11) to help find the lost mines.

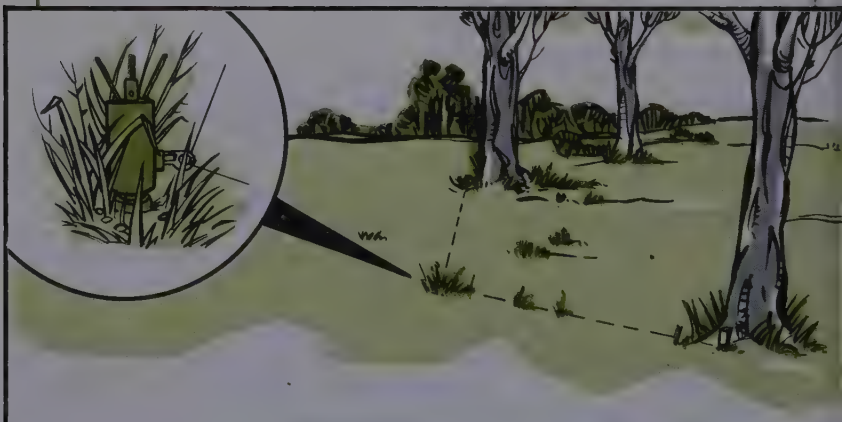
2. Do not use boobytraps in protective minefields as these devices will seriously delay removal of the minefield.



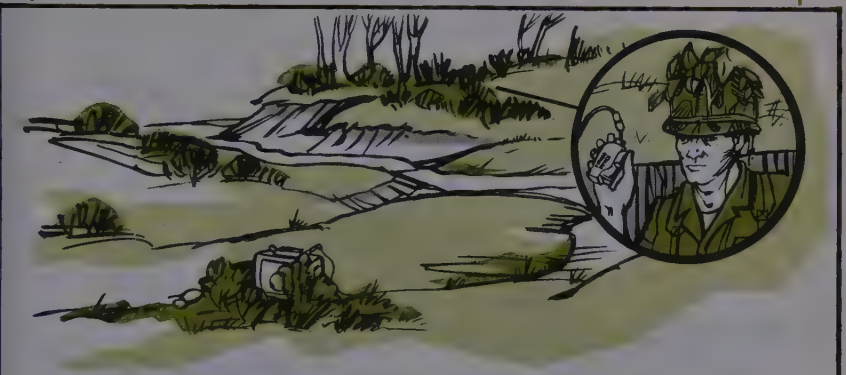
You and your team leaders make a ground reconnaissance and identify points where tanks can cross the area you have been directed to mine -- the bridge and the ford.

You also find that antipersonnel mines are needed to protect the antitank mines and to cover the likely avenues of approach for enemy infantry. AP mines are also good for the open area in front of your platoon.

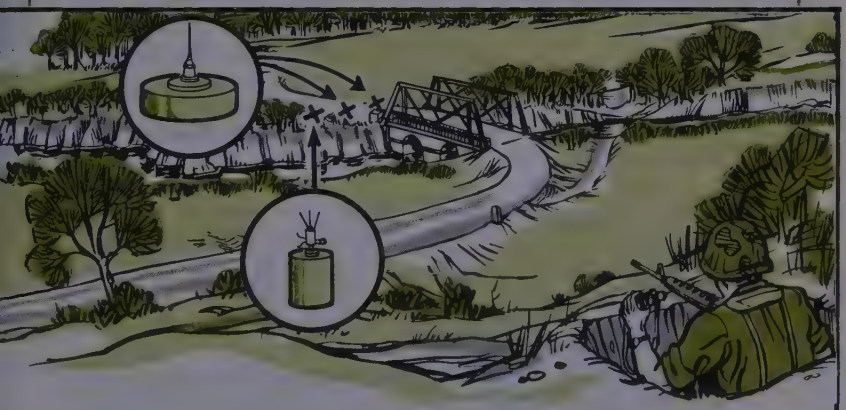
As you reconnoiter, think about how you are going to camouflage the mines. Bury the M21 antitank mines with only the tilt rod exposed. This rod can be camouflaged with brush or tall grass.



The M16A1 antipersonnel mines can be buried and the tripwires camouflaged with grass or leaves.



The Claymore mine and firing wire should be camouflaged using grass or leaves also.



Insure that these locations can be observed by your troops at all times as continuous observation can keep the enemy from moving or boobytrapping your mines.

A layout of your minefield might look like this.

When you decide where you will lay the mines and are ready to begin, inform your platoon leader.

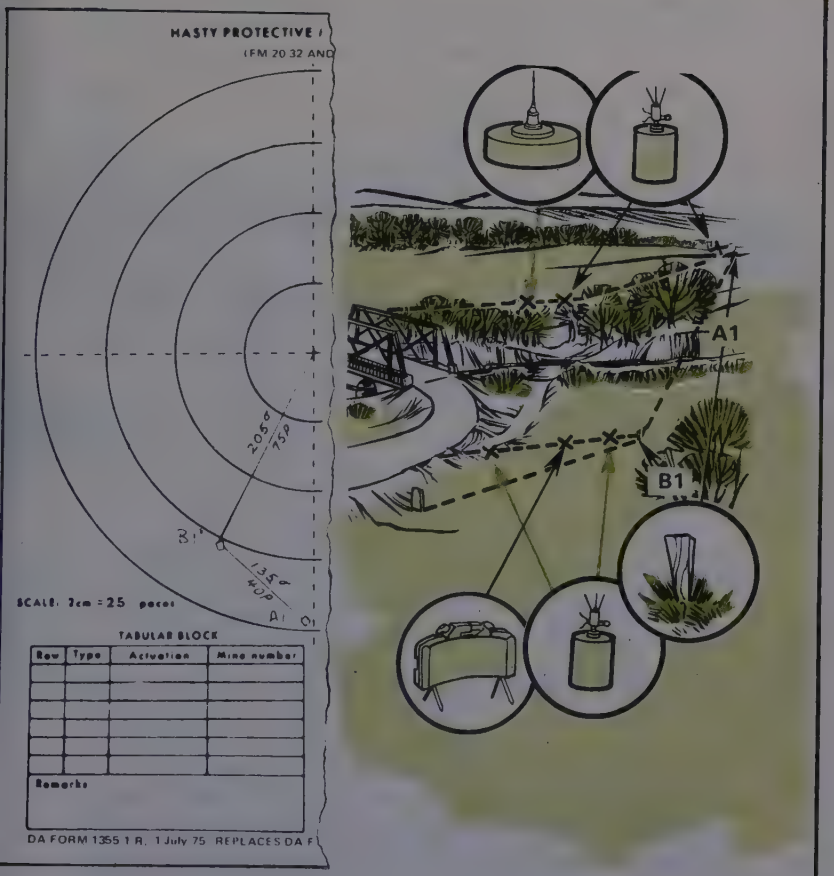
Now have your men place the mines at the locations you chose. DO NOT ARM OR ATTACH TRIPWIRES TO THE MINES AT THIS TIME.

While they are placing the mines, find an easily identifiable reference point in front of your position. The concrete post to your front is an ideal reference point; you begin recording the field.

At the reference point, mentally visualize your field, running in rows, parallel to your position. This will make the recording simpler and will later make retrieval quicker and safer. By STANO/ STANAG agreements, the row closest to the enemy will be designated A while succeeding rows will be B, C, etc. For this hasty protective minefield, you decide that two rows will be enough.

The ends of a row are indicated by two markers. These markers are labeled with the letter of the row and the number 1 for one end of the row and 2 for the other end of the row. The marker could be a wooden stake, steel picket, etc.

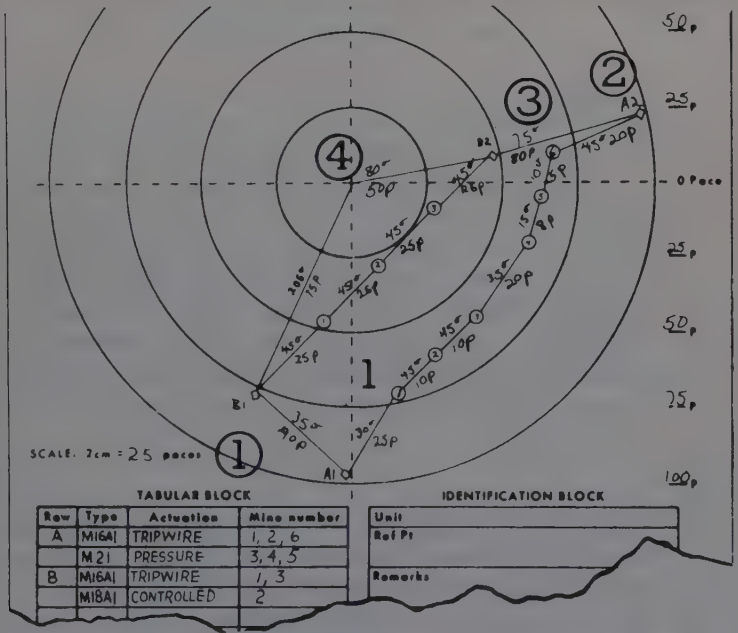
From the concrete post, measure the magnetic azimuth in degrees and pace the distance to a point arbitrarily selected between 15 and 25 paces to the right of the first mine. This point will be called B-1 and will mark the beginning of the second row. Place a marker at B-1 and record the azimuth and distance on DA Form 1355-1-R.




Now measure the azimuth and distance to a point 15 to 25 paces from the first mine in A row. Place a marker at this point and record it as A-1.

Measure the distance and azimuth from A-1 to the first mine and record them. Then measure the distance and azimuth from the first mine to the second, and so on until all mine locations have been recorded as shown. Repeat this procedure for the second row.

**Your form should now look like this**




**1.** Assign each mine a number to identify it in the tabular block.

**2.** When the last mine location is recorded, an azimuth and distance are measured from that point to another arbitrary point, A-2 and B-2. Here a marker is placed as at A-1 and B-1.

**3.** Now measure the distances and azimuths from the reference point to B-2, and from B-2 to A-2, and record them.

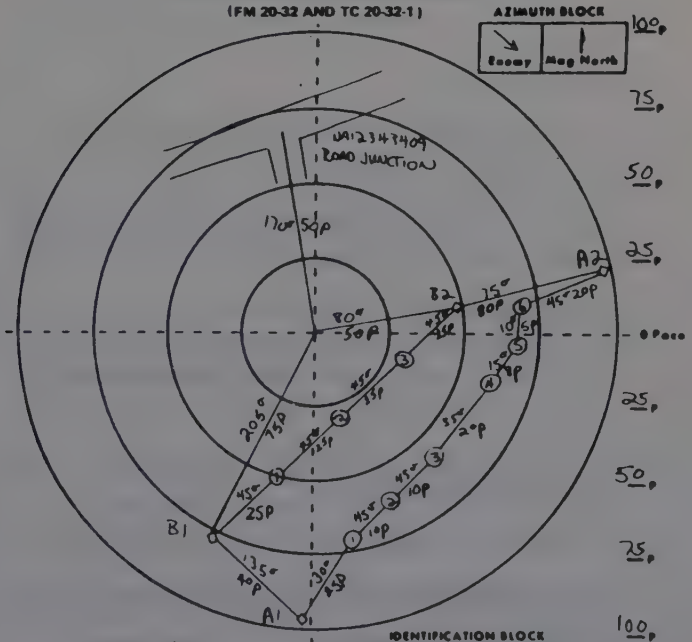
4. When you retrieve the mines, start at the reference point and move to B-1 using the azimuth and distance as recorded. Then move from B-1 to the mine. However, if B-1 is destroyed, move from the reference point to B-2 using that azimuth and distance. You will now have to shoot the back azimuth from B-2 to the last mine, i.e., add or subtract 180 degrees from the recorded azimuth. The stakes at A-1, B-1, A-2 and B-2 are necessary because it is safer to find a stake when traversing long distances, than to find a live mine.

Now tie in the reference point with a permanent landmark that can be found on your map. Measure the distance and azimuth from this landmark to the reference point. The landmark might be used to help others locate your minefield should it be abandoned. Finally, complete the tabular and identification blocks. Your completed form should look like the form on the next page.

While you are tying in the landmark, your men can arm the mines. Arm the mines nearest the enemy first, letting your men work their way back to the platoon position safely.

## HASTY PROTECTIVE MINEFIELD RECORD

(FM 20-32 AND TC 20-32-1)




### TABULAR BLOCK

| Row | Type | Activities | Mine number |
|---|---|---|---|
| A | M16A1 | TRIPWIRE | 1, 2, 6 |
| | M21 | PRESSURE | 3, 4, 5 |
| B | M16A1 | TRIPWIRE | 1, 3 |
| | M18A1 | CONTROLLED | 2 |
| | | | |
| | | | |

Remarks: LANDMARK IS ROAD JUNCTION AT VA12347409

### IDENTIFICATION BLOCK

Unit: 2ND BN, A Co, 1ST BDE, 1 CAV DIV

Location: Concrete post side of road

Remarks: POINTS A1 TO A2, B1 TO B2 ARE MARKED WITH 2 X 2 STAKES

Map & Sheet No: TALBOT 5568

Name of OIC: LT ALLAN

Signature: [signature] Date & Time: 7 JAN 75

Mines removed:

Mines transferred:

DA FORM 1355-1-R, 1 July 75 REPLACES DA FORM 1355-1, 1 Mar 68 WHICH IS OBSOLETE

## COMPLETION REPORT

When the minefield is laid and charted, report to the platoon leader that you have completed the field. When you return to the platoon, give the platoon leader the copy of DA Form 1355-1-R you have completed.

In summary, here are the steps for installing a hasty protective minefield.

- **Insure you understand where you are to place the minefield.**
- **Reconnoiter. Find the best places for the mines based on where the enemy is likely to come and your platoon's ability to keep the mines under observation.**
- **Inform the platoon leader you are placing the mines.**
- **Place the mines but do not arm them.**
- **Record the minefield on DA Form 1355-1-R.**
- **Arm the mines, working from the enemy side to the friendly side.**
- **Report completion of the minefield.**
- **Give the DA Form 1355-1-R to the platoon leader when you return to your platoon.**

## PART THREE
# WIRE AND DEMOLITIONS

As part of your company's efforts, your squad may be tasked with emplacing obstacles. Your platoon leader will generally specify the exact location for these obstacles. To be effective, these obstacles should:

- **be under friendly observation and covered by fire.**
- **be concealed from enemy observation as much as possible.**
- **be erected in an irregular pattern.**
- **be employed in depth.**
- **be coordinated with natural obstacles.**
- **afford no advantage to the enemy.**

## TRIPLE STANDARD CONCERTINA FENCE

Of the wire barriers you may be tasked to construct, the most common is the triple standard concertina fence. It is constructed using either barbed wire concertina or barbed tape concertina. There is no difference in construction methods.

The material and labor requirements for a 300-meter triple standard concertina fence are listed below:

| | |
|---|---|
| **160** | **long pickets** |
| **4** | **short pickets** |
| **3** | **400-meter reels of barbed wire** |
| **59** | **concertinas** |
| **317** | **staples** |
| **30** | **man-hours to erect** |

Construction procedures are as follows:

**1** lay out and install all pickets from left to right (as you face the enemy). The long pickets are spaced 5 paces apart and the short (anchor) pickets are placed 2 paces from the end of the long pickets. The enemy and friendly picket rows are offset and are placed 3 feet apart.

SEE FOLD OUT

2 Now lay out all concertina rolls. One roll is placed in front of the third picket on the enemy side and two rolls to the rear of the third picket on the friendly side. Then repeat this operation for every fourth picket thereafter.

3 Now install the front row concertina and horizontal wire. Make sure you place the concertina **over** the pickets.

4 Install the rear row of concertina and horizontal wire.

5 Install the top row concertina and join to the rear horizontal wire.

## DEMOLITIONS

The squad may often be called upon to perform demolition work. Basic to a successful demolition effort is proper preparation of a charge.

There are two basic methods to detonate a demolition charge.

| | |
|---|---|
| 1 | Nonelectric. |
| 2 | Electric. |

**Nonelectric.** In this method, the following steps should be followed:

1. **Clear the fuzewell of a block of TNT or push a hole in a block of C4 plastic explosive 1/3-inch deep and 1/4-inch in diameter.**
2. **Cut and discard a 6-inch length from the free end of the time blasing fuze to prevent a misfire caused by the exposed powder absorbing moisture from the air.**

3. **Compute the burning time of a 3-foot section of fuze to determine how much fuze you should use to allow the person detonating the charge to reach a safe distance from the explosion. Divide the burning time by the length in feet and determine how many feet of fuze you need.**

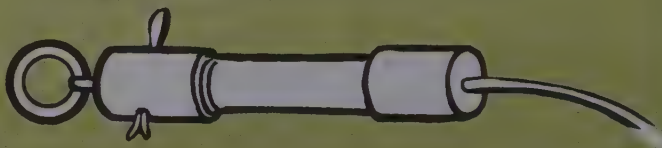
4. **Inspect your nonelectric blasting cap to insure it is clear of foreign matter.**

5. **Gently slip the blasting cap over the fuze so that the flash charge in the cap is in contact with the end of the time fuze.**

6. **After seating the cap, crimp it 1/8-inch from the open end with a set of M2 cap crimpers. Point the cap out and away from you when crimping.**

7. **Insert the blasting cap into the cap well. When using C4, mold it around the cap.**

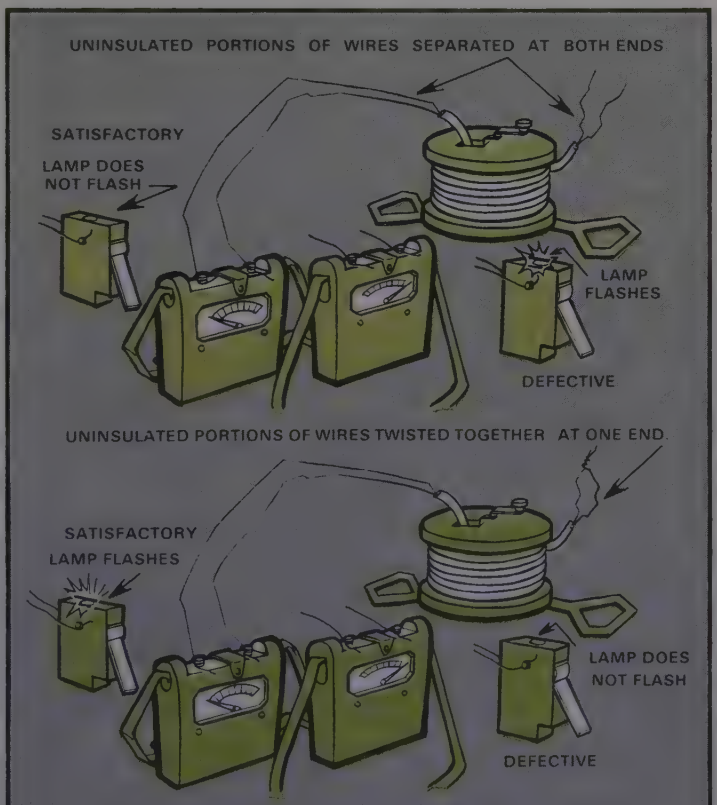
8. **Insert the free end of the fuze into an M60 fuze ignitor and secure it in place by tightening the fuze holder cap.**



9. **To fire, remove the safety pin of the fuze ignitor and pull on the pull ring.**

**Electric.** In this method, the following steps should be followed:

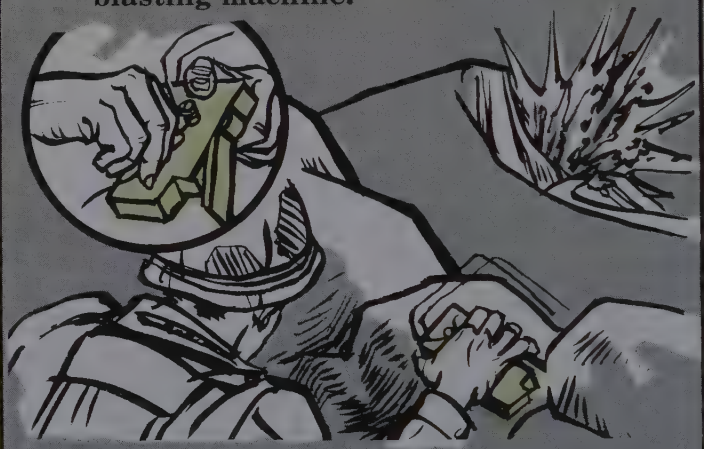
1. **After locating a safe firing position, lay out your firing wire from the charge to the firing position.**
2. **Check your firing wire with a galvanometer to insure the firing wire does not have a short circuit or a break. See illustration on facing page for use of the galvanometer.**
3. **Prepare cap well in TNT or C4.**
4. **Insert cap into well and secure with priming adapter (TNT) or mold the explosive around the cap (C4).**




**5. Splice lead wire of cap to firing wires.**

**6. Move to firing position and check the wire circuit with the galvanometer.**

7. Fasten firing wires to the posts of the blasting machine.



8. Operate the blasting machine to fire the charge.

**NOTE:**

**Extreme care must be exercised when using demolitions. Only leaders should set charges. Insure all personnel are clear before detonating charges. If a nonelectric charge misfires, wait at least 30 minutes before investigation.**

## DEMOLITION GUARD

Your squad may be called upon to perform a demolition guard mission. This requires securing a site where demolitions have been emplaced by engineers. It may also require that the demolitions be fired by the squad leader under certain circumstances. Additionally, the demolition guard may be responsible for:

- **control of traffic and refugees.**
- **giving written orders to a demolition firing party (one or two engineers who may be attached to the squad) to arm or fire the emplaced demolitions.**
- **reporting the effectiveness of the fired demolitions to a designated officer.**
- **having a designated headquarters informed of the situation at the demolition site.**

Specific instructions are provided to the leader of a demolition guard. They are usually issued in a target folder containing the standard NATO forms (ORDERS TO THE DEMOLITIONS GUARD COMMANDER) and any pertinent engineer information. The orders will be very detailed and will provide clear instructions as to the nature and exact location of the target site, procedures for arming and firing the demolitions, code words (if used), and any other duties to be performed by the demolition guard. These orders must be **read, understood,** and **followed.**

## PART FOUR

# BREACHING OBSTACLES

An obstacle is anything that stops, delays, or redirects movement. The enemy prepares obstacles to stop your movement, to slow you down, or to cause you to move into an area which he has selected as a kill zone. If he has selected an area, he will have prepared it so that he can inflict great damage to your squad when you move into this kill zone. He will capitalize upon natural obstacles such as defiles, rivers, thick woods, swamps, or cliffs. He will then reinforce these with manmade obstacles. There are seven basic kinds of manmade obstacles you will most often encounter. You must understand the tactics and techniques to overcome these obstacles and the problems which they will present.

Some of these obstacles may not restrict a rifle squad, but will restrict vehicular movement. Your squad may be required to clear these obstacles to insure the forward movement of vehicles. Obstacles will normally be covered by preplanned direct and indirect fires to prevent attacking troops from breaching them. You will seldom be able to prevent the enemy from knowing that you are going to attempt a breach, but you can deny him the knowledge of where and when the breach will be attempted. If you do, the enemy will not be able to concentrate his fires on your squad.

Breaching operations fall into four distinct tasks. These may occur simultaneously.

**1**

**Suppress the enemy covering the obstacles, using all available fires to reduce the volume and accuracy of his fires.**

**2**

**Request smoke to obscure the obstacle area and conceal your troops without indicating to the enemy where the breach will occur. Prevent the enemy from knowing exactly where and when you intend to breach the obstacle.**

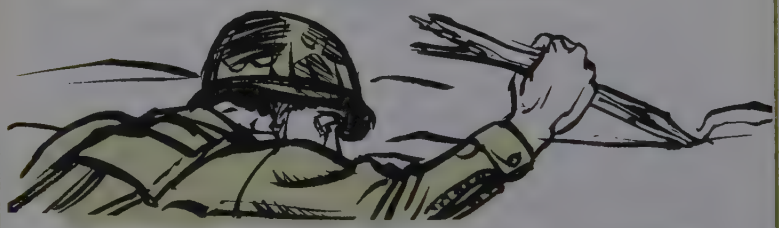
**3**

**Secure the far side of the obstacle to prevent enemy interference with personnel clearing it. This step may develop into a major infantry battle when you are clearing antitank obstacles.**

**4**

**Reduce the obstacle by whatever means are appropriate (specific techniques will be discussed later).**

The minefield is a convenient, easily constructed, portable obstacle that is frequently employed to cover large areas. Minefields will differ in layout and cluster composition, and the mix of antitank and antipersonnel mines, depending upon the availability of mines and the nature of the avenue of approach they are blocking. Minefields may be employed in open areas or dense woods. A typical mission to assign a rifle squad, supported by the remainder of the platoon, is to probe a path through a minefield.



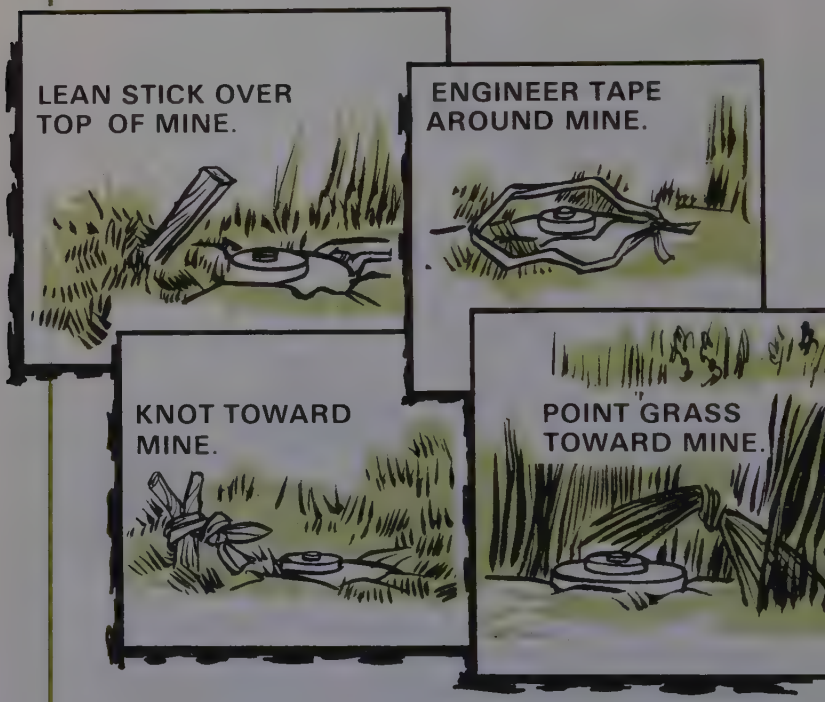
The only way that a squad can clear a minefield without special equipment is to probe with pointed sticks. **Do not use bayonets** because they may detonate all known types of antipersonnel (AP) mines and will detonate any magnetic mines. Artillery and mortar fires are normally employed to suppress the enemy and obscure the area with smoke. The platoon (-) withholds fire to avoid disclosing the exact location of the breach. If the probing squad is discovered and brought under direct fire, the platoon (-) will provide supporting fire. If indirect fires are not available, grenade launchers and long-range machinegun fires are used to keep from disclosing the point where the breach will be made.

When a squad is given the mission to probe a footpath through a minefield, it will use two probers; one in front, clearing wide enough to crawl through, and a second man clearing 10 meters behind him and slightly to one side so that their lanes overlap.

**Change the probers periodically**

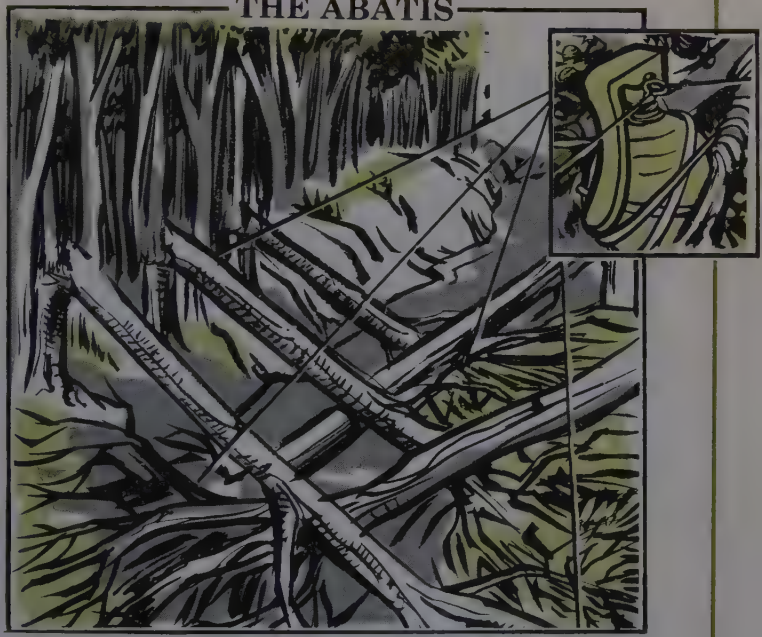
The probing team should not be encumbered by weapons, fieldpacks, etc. Their equipment will be carried by other members of the squad. Two other men will crawl along behind to provide security for the probers, carry additional supplies, or to assume a prober's mission if one becomes a casualty.

**Cover this activity with fires to your flanks**




Mine locations should be marked with sticks, engineer tape, cloth, or toilet tissue. No attempt should be made to remove mines because they may be boobytrapped with antihandling devices, and considerable time is required for removal. The squad will immediately follow the probing team. Once through the minefields, they will establish security.

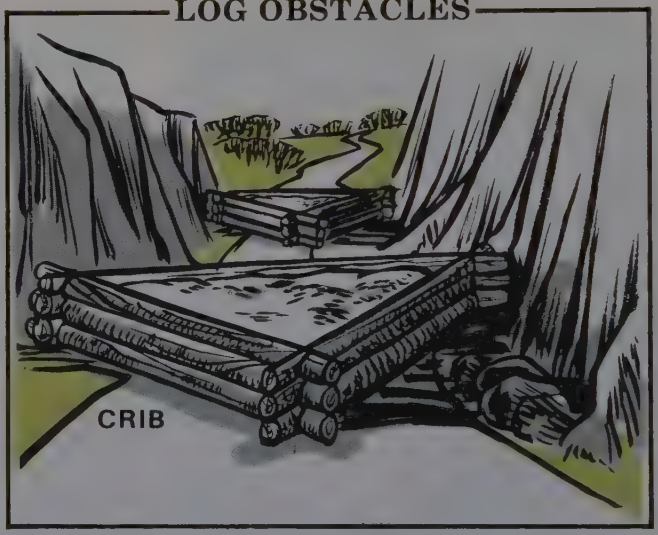
## THE ABATIS



An abatis is an obstacle created by cutting down trees so their tops are criss-crossed and pointing toward the expected enemy direction. It is one of the most effective obstacles to prohibit vehicular movement in a forest. The bottoms of the trees are left attached to the stumps as high as possible to make removal more difficult. This obstacle may be reinforced with mines and antihandling devices **(boobytraps).**

**To clear an abatis enemy fires must first be suppressed. Then mines and boobytraps must be neutralized (exploded using C4 or tripwires pulled with grappling hooks and long ropes). The trees can then be cut from their stumps and trimmed using pioneer tools or demolitions to allow vehicles to pull the logs out of the road.**

## LOG OBSTACLES



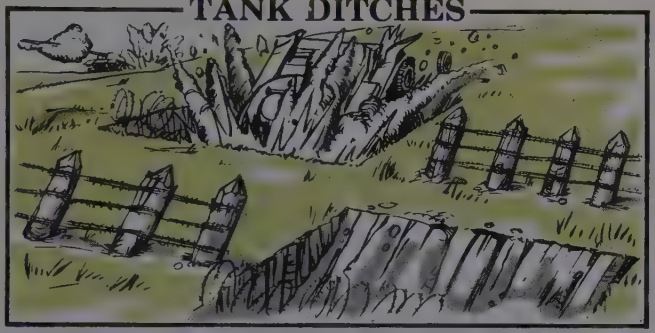

Wooded areas with trees 15 inches in diameter that are close enough to prohibit movement become armor obstacles. Tree stumps or vertical posts 15 inches in diameter and 2 to 4 feet in height are also obstacles to armor movement. These type obstacles are most effective when combined with tactical wire, mines, and boobytraps. Use the same techniques employed for a minefield to suppress the enemy's fires and to neutralize mines and boobytraps. After securing the far side, remove the post obstacles by demolitions and pioneer tools. Just as with minefields, clear lanes through the barrier. Demolitions can be used to loosen the posts, or they can be removed by pulling them out with vehicles.

## STUMP AND POST OBSTACLES

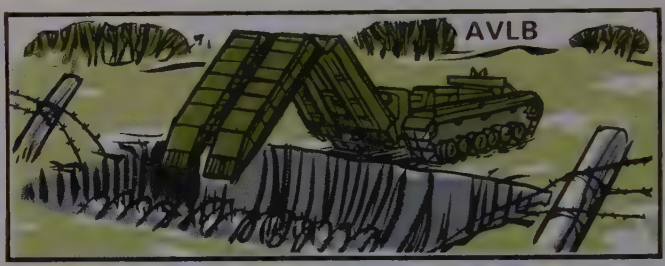
In addition to post obstacles and abatis, logs are frequently used to construct triangular cribs which are filled with earth and rock. These are used to block narrow roads and defiles. Log hurdles using four 6- to 8-inch vertical and three 8- to 10-inch horizontal logs laced together with wire or cable are also effective in stopping wheeled traffic and slowing tracked vehicles. Easily constructed with basic pioneer tools, they are frequently encountered in wooded areas. If these types of obstacles are encountered, you must begin immediately to recon by fire against likely rocket-propelled antitank guided missile locations. These obstacles are designed to slow mechanized and motorized vehicles long enough to get a good shot. Smoke should be requested and immediately followed by an artillery mix of HE-SQ and HE-VT. The mix may also include more smoke or WP.

Squads should dismount, sweep the area, and clear out hunter-killer teams. Watch out for AP mines, boobytraps, and command-detonated mines which may be employed in the surrounding area. Once cleared of enemy fires, you can proceed to take the barrier apart using demolitions, pioneer tools, and vehicles. Remember - clear or neutralize mines first - watch for pressure release devices. The best way is to hit the crib first with some indirect, tank, or CEV fire, then demolish it. If no tanks are available, use your Dragon. Then, use long cables to pull it apart. Better to lose one missile or cable than a soldier. The enemy knows that you will eventually have to clear the obstacle away, so he will be sure to do something to make you regret it.

## TANK DITCHES

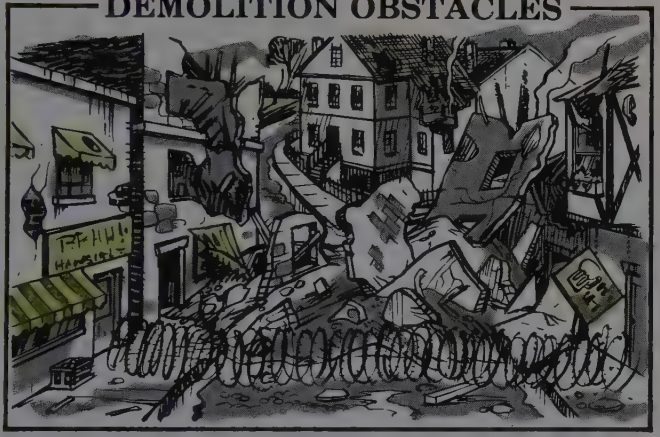


Tank ditches are normally used in open terrain. They are extremely time-consuming and hard to construct. Tank ditches are at least 4 meters (**13 feet**) wide and 1.8 meters (**5 feet**) deep. The enemy will normally put tactical wire inside them to prevent you from dismounting and using the ditch for shelter. The enemy may prepare the approaches, sides and bottom of the ditch with AT and AP mines or chemicals to make breaching difficult. Tank ditches must be covered by AT fire to be effective. Use tank or ATGM fire to suppress enemy tanks or AT guns. Cal .50 fire will suppress infantry AT weapons. Once the enemy fire and observation is suppressed, you can start reducing the obstacle. If suppression and smoke are effective, a dozer tank or combat engineer vehicle can be used to push down the side of the ditch, or the ditch can be crossed with an AVLB. Normally, infantry will cross the ditch to secure the far side using the same techniques used to clear a minefield. Engineers may accompany infantry and remain in the ditch to blow down and slope the sides so tanks can quickly join the infantry.



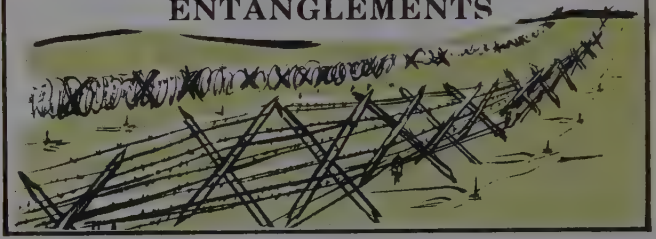
If AVLBs are used, the ditch can be crossed quickly. You must secure the far side to preclude destruction of your vehicles as they move single file over the bridge. As soon as possible, the ditch should be sloped or filled to permit the AVLB and other vehicles to accompany the attacking echelon.

## DEMOLITION OBSTACLES



Properly emplaced or directed demolitions can create rock slides, road craters, and other obstacles to restrict vehicular traffic. The enemy will recess the sides of the craters with spoil to make it difficult for a tank to back out. This also makes it more difficult to use demolitions or the demolition gun of the CEV to cave in the sides of the crater to permit entry or exit. With craters, you use the same techniques as for tank ditches. If you have engineer assistance, they can help with the CEV demolition gun and earth-moving equipment. You have few assets to do much about landslides, except to assist in the suppression and security necessary to permit the engineers to bring up earth-moving equipment to reduce the obstacle. However, you may become involved in mine and boobytrap clearance. An enemy defending a built-up area may demolish masonry, brick, or concrete buildings to block avenues of approach.

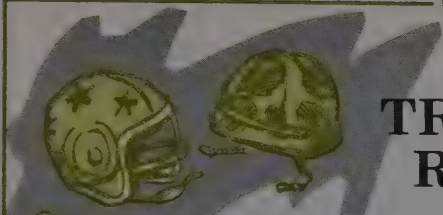
## WIRE FORTIFICATIONS AND ENTANGLEMENTS



Wire fortifications and entanglements are used in separating accompanying infantry from armor. They can also be effectively employed as roadblocks against wheeled vehicles. Tactical wire is used in conjunction with other obstacles when possible. Wire is relatively easy to breach and must be covered by fire to be effective. Wire by itself is not a significant obstacle to a mechanized or armor force. You must, of course, suppress the enemy's fire, obscure his field of vision, establish security for your breaching party, and then reduce the obstacle. You can reduce wire with cutters, bangalore torpedoes, or demolitions. Watch out for antipersonnel mines and boobytraps. These must be neutralized with demolitions or grappling hooks first.

Once through the wire, you must assault nearby enemy positions and reestablish security to permit the movement of the rest of your platoon through the obstacle. Tank fire, the demolition gun of the combat engineer vehicle, and massed fires of the platoon will help your squad breach wire entanglements.

CHAPTER 10



# TRAINING THE RIFLE SQUAD

***TEAMWORK** is a factor which distinguishes a successful squad from an unsuccessful one. Teamwork is developed through many hours of hard, intensive training.*

Training a squad can be compared to training a football team. Each man must perform a task that requires a specific skill, to either reach his team's goal or prevent the opponent from reaching his. Think of yourself, the squad leader, as being both a player and the coach. When you give an order on the battlefield, things have got to happen. Men must respond to your order just as they would to the quarterback when he gives the signal for the snap of the ball. Not only are you required to be the squad's quarterback, but you must also be its coach. Prior to starting training, you must insure that **each squad member** is fully prepared to do his part. Each soldier must not only be proficient in his combat skills, but also be in top physical condition and an expert marksman, in order to be a contributor to his team. You must know the level of training of your unit, and then plan your available time to train the squad as a team, to reach a specific standard. The actual time made available to a squad leader will be very little, so use it wisely.

## TRAINING LITERATURE

A variety of training literature is available to assist you in raising the individual skill level of your troops and training them as a team.

### SOLDIER'S MANUALS

Soldier's Manuals are a series of field manuals that describe the skills a soldier must be able to perform to be proficient in his MOS. Use these to determine the standards that your troops should meet. They will be tested on these skills when they take the Skill Qualification Tests (SQT).

### TRAINING EXTENSION COURSE (TEC)

These are self-study lessons on individual skills that will assist you in keeping your soldiers' proficiency up to standard. Obtain these through your training NCO or training officer.

### TRAINING CIRCULARS (TC)

TCs are written by the various service schools. These will keep you informed of latest tactical doctrine. Appendix A lists several of the TCs that pertain to infantry squads. If they are not available, order them through your training officer or NCO.

### HOW TO FIGHT MANUALS

These are special tactical manuals that have been written to tell leaders how to fight. You will be primarily interested in FM 7-7, The Mechanized Infantry Platoon and Squad and FM 7-8, The Light Infantry Platoon and Squad.

## FIELD MANUALS (FM)

Field manuals, other than "How to Fight" manuals, are written to cover specific subjects which may be essential to you.

## TECHNICAL MANUALS (TM)

These manuals are equipment-oriented. They are designed to assist you in maintenance of your squad's weapons, vehicles, and equipment. Maintenance plays a very big part in training your squad for combat.

## ARMY TRAINING AND EVALUATION PROGRAM (ARTEP)

This is a manual that describes the tasks, conditions, and standards that your squad must attain in order to be combat-ready. It is designed:

- **To provide a guide for training objectives, by specifying minimum standards of performance for combat-critical missions and tasks.**
- **To evaluate the efficiency and effectiveness of past training of all echelons of the battalion, from crew/squad through battalion/task force.**
- **To provide an assessment of future training needs.**

**TRAINING OBJECTIVE.** To make this vast amount of training literature help your program, you must first know the specific tasks required of your squad in combat. The ARTEP specifies these tasks in the form of training objectives to guide you in the preparation and conduct of training. A training objective has three parts:

1

**The task to be performed. What skill do you want the trainees to learn?**

2

**The conditions under which the task is performed.**

3

**A training standard of acceptable performance. How well must the soldiers perform the task?**

The following typical training objective is taken from ARTEP 7-15 for a rifle squad for level 3 proficiency.

**TASK**

**Conduct a forced march.**

**CONDITION**

**Over a 12 kilometer marked route, the squad carries the following weapons, equipment, and ammunition:**

**Each squad member. Pistol belt, first aid packet, entrenching tool and cover, mess kit, full canteen with cup and cover, protective mask with carrier, bayonet with scabbard, helmet with liner, and two ammo pouches with four full magazines (18 rds ea) or 5.56-mm ball ammunition.**

**Designated squad personnel. Five expended M72 LAWs, with M32 35-mm subcaliber LAW training round, and one M60 machinegun with one can 7.62-mm linked ball and tracer ammunition.**

**STANDARD**

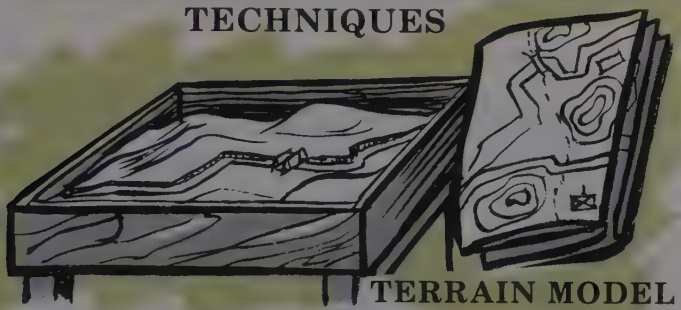
**Squad completes march in 2 hours or less with all personal weapons, equipment, and ammunition.**

These training objectives from the ARTEP are important to you because:

- ☑ **they provide a basis for your training.**

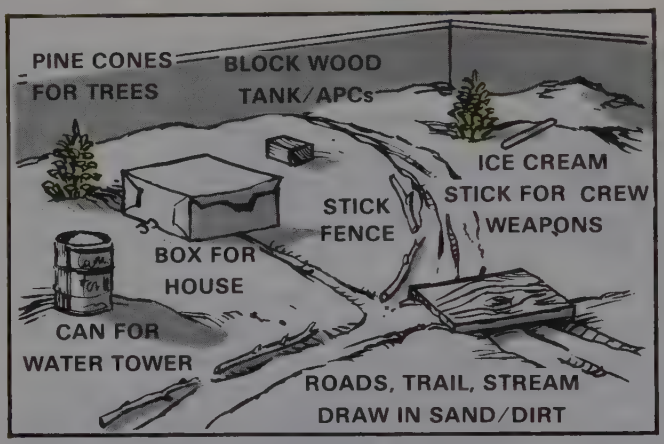
- ☑ **they tell you what your squad will be expected to do in combat.**

Prior to training your squad, become familiar with all squad tasks in the ARTEP for your type of infantry battalion. They will be listed according to the level of training your unit has attained. This will be level 1, 2, or 3.



TERRAIN MODEL

Terrain models are best used for introducing or demonstrating tactical techniques. The models are simple, easy to construct, and take only a few minutes to prepare, using local material. To prepare a terrain model exercise, consider the training objectives, and visualize a tactical situation which will require the squad to apply the techniques which will accomplish the training objectives. Draw a sketch of that situation and use it to design the terrain model. Terrain models can be used both indoors and outdoors and can vary from a temporary diagram drawn in the dirt with a stick to more elaborate and permanent models. A temporary terrain model can be built in about 10 minutes using the ground. Use a stick to draw lines on the ground which mark the boundaries of the sketch. Get a few shovelfuls of dirt to build hills and high ground. Roads and trails can be traced in loose soil and sand. Rivers and streams can be scratched out with a stick, and handfuls of grass, pine cones, etc., make excellent forest. Use rocks to represent soldiers or weapons. Do not worry about showing great detail or making everything to scale. Rough approximations are adequate.


PINE CONES FOR TREES
BLOCK WOOD TANK/APCs
ICE CREAM STICK FOR CREW WEAPONS
STICK FENCE
BOX FOR HOUSE
CAN FOR WATER TOWER
ROADS, TRAIL, STREAM DRAW IN SAND/DIRT

A terrain model can also be made inside the barracks in bad weather using a blanket, shelter half, or burlap sacks to represent the terrain. Use strips of tape or cloth to indicate rivers, trails, or roads. Rocks or cans can represent landmarks or enemy positions. Blankets, socks, or newspapers can be crumpled and placed under the terrain cloth to shape hills. If bad weather is a constant threat to outdoor training, consider constructing a permanent indoor terrain model. There is no standard size for terrain models; a typical size is 4 feet square. It requires about two sandbags full of sand. Make the tray by nailing a piece of wallboard or plywood to a frame made from strips of wood. Sand may be arranged to represent terrain features and colored powder used to represent other features, such as roads, trails, rivers, etc.

# TACTICAL DRILLS

There are exercises to develop teamwork. Squads should go through these drills with the same precision as a well executed football play. They can be conducted almost anywhere, are easy to prepare, and need last only 30 to 40 minutes. Examples of offensive tactical drills are: clearing barriers, obstacles, minefields, buildings, and trenchlines; and dismounting APCs.

Begin your drill with an introduction which explains that the purpose of the drill is to promote teamwork and give each man an understanding of how his job relates to the others in the unit.

Follow with a demonstration of the particular technique to be covered. A terrain model may be used for the demonstration. Point out the locations and actions of each member of the team and see that all men understand the standards associated with the drill. After the demonstration, answer all questions.

The unit then executes the drill under supervision until it is mastered.

The teams should be talked through the drill by the numbers. During this by-the-number part of the exercise, team leaders act as assistant instructors. This means that they should be briefed earlier on their participation in the exercise. Also, during this part of the drill, you should move from team to team to supervise. When you have mastered the techniques on open terrain, move to more realistic terrain.

During this part of the drill, the assistant instructors should stop the drill if they see anything being done improperly. Errors should be corrected and the drill continued or started again by the evaluator.

## TACTICAL EXERCISE WITH TROOPS (WALK THROUGH)

The tactical exercise with troops is a simulated operation done at a walking pace. Each rifle squad leader takes his unit through the various aspects of an attack, defense, or other operation. The entire exercise is conducted at a walk so that emphasis can be on discussion of situations and actions.

## FIELD EXERCISE

**Special emphasis must be placed on the field exercise which is the optimum method of tactical training with the entire platoon. Only by the continuous practice of techniques and fundamentals, such as movement techniques, fighting through, attacks, defense, retrograde, and other special type operations, will the leader and soldier be able to grasp completely what is expected of him. The other training methods already addressed in this section are only building blocks which prepare the soldier for the actual hands-on-training of the field exercises which should be as near to combat conditions as possible. Always conclude a field exercise with a critique.**

**A critique discusses the good and bad points of the exercise. It includes both proper application of tactical principles and constructive criticism for failure to apply those principles. If the phase of training represented by the exercise is completed satisfactorily, the fact should be stated. Deficiencies are noted and corrective measures taken.**

# APPENDIX A

## REFERENCES

FM 3-220 ..... Chemical, Biological, and Radiological (CBR) Decontamination

FM 5-20 ..... Camouflage

FM 6-135 ..... Adjustment of Artillery Fire by the Combat Sold

FM 7-7 (TBP) .... The Mechanized Infantry Platoon and Squad

FM 7-8 (TBP).... The Light Infantry Platoon and Squad

FM 7-10 (TBP)... The Light Infantry Rifle Company

FM 7-11B1 ..... Soldier's Manual for Light Weapons

FM 7-11B2 ..... Soldier's Manual for Light Weapons

FM 7-11B3 ..... Soldier's Manual for Light Weapons

FM 7-11C1 ..... Soldier's Manual for Indirect Fire Weapons

FM 7-11C2 ..... Soldier's Manual for Indirect Fire Weapons

FM 7-11C3 ..... Soldier's Manual for Indirect Fire Weapons

FM 20-32 ..... Landmine Warfare

FM 21-6 ..... How to Prepare and Conduct Military Training

FM 21-41 ..... Soldier's Handbook for Defense Against Chemic and Biological Operations and Nuclear Warfare

FM 21-60 ..... Visual Signals

FM 21-74 (TBP) . . . . Patrolling

FM 21-75 (TBP) . . . . Combat Skills of the Soldier

FM 23-9 . . . . . M16A1 Rifle and Rifle Marksmanship

FM 23-11 . . . . . 90-mm Recoilless Rifle, M67

FM 23-12 . . . . . Technique of Fire of the Rifle Squad and Tactical Application

FM 23-23 . . . . . Antipersonnel Mines M18A1 and M18 (Claymore)

FM 23-30 . . . . . Grenades and Pyrotechnic Signals

FM 23-31 . . . . . 40-mm Grenade Launchers M203 and M79

FM 23-33 . . . . . 66-mm Heat Rocket M72A1, M72A2, and M72

FM 23-65 . . . . . Browning Machinegun Caliber .50 HB, M2

FM 23-67 . . . . . Machinegun Cal 7.62-mm, M60

FM 30-40 . . . . . Handbook on Soviet Ground Forces

FM 71-1 (TBP) . . . . . The Tank/Mechanized Infantry Team

FM 90-3 (TBP). . . . . Desert Operations

FM 90-4 (TBP) . . . . Air Assault Operations

FM 90-5 (TBP) . . . . Jungle Operations

# APPENDIX B

## STANDARDIZATION AGREEMENTS (STANAG)

This manual is in consonance with international agreements listed by type of agreement and number at the beginning of each STANAG chapter, to include:

| TITLE | NATO STANAG | CENTO STANAG | SEATO STANAG | ABCA STANAG |
|---|---|---|---|---|
| Marking of Contaminated or Dangerous Land Areas. | 2002 | 2002 | 2002 | 124 |
| Patrol Reports by Army Forces | 2003 | 2003 | 2003 | 6R |
| Bombing, Shelling, and Mortaring Reports | 2008 | 2008 | 2008 | 5R2 |
| Operation Orders, Annexes to Operation Orders, Admin/Log Orders. | 2014 | 2014 | 2014 | 17R |
| Methods of Describing Ground Locations, Areas, and Boundaries. | 2029 | 2029 | 2029 | 34R |

| TITLE | NATO STANAG | CENTO STANAG | SEATO STANAG | ABCA STANAG |
|---|---|---|---|---|
| Emergency Alarms of Hazards or Attacks | 2047 | 2047 | 2047 | 110 |
| Relief of Combat Troops | 2082 | 2082 | 2082 | 49R |
| Battlefield Illumination | 2088 | 2088 | ----- | 108 |
| Fire Coordination in the Land/Air Battle | 2099 | 2099 | ----- | ----- |
| Reporting Nuclear Detonations, Radioactive Fallout, and Biological and Chemical Attack. | 2103 | ----- | ----- | 123 |
| Radiological Survey. | 2112 | 2112 | 2112 | 132 |

# APPENDIX C

## PREPARING FOR COMBAT OPERATIONS

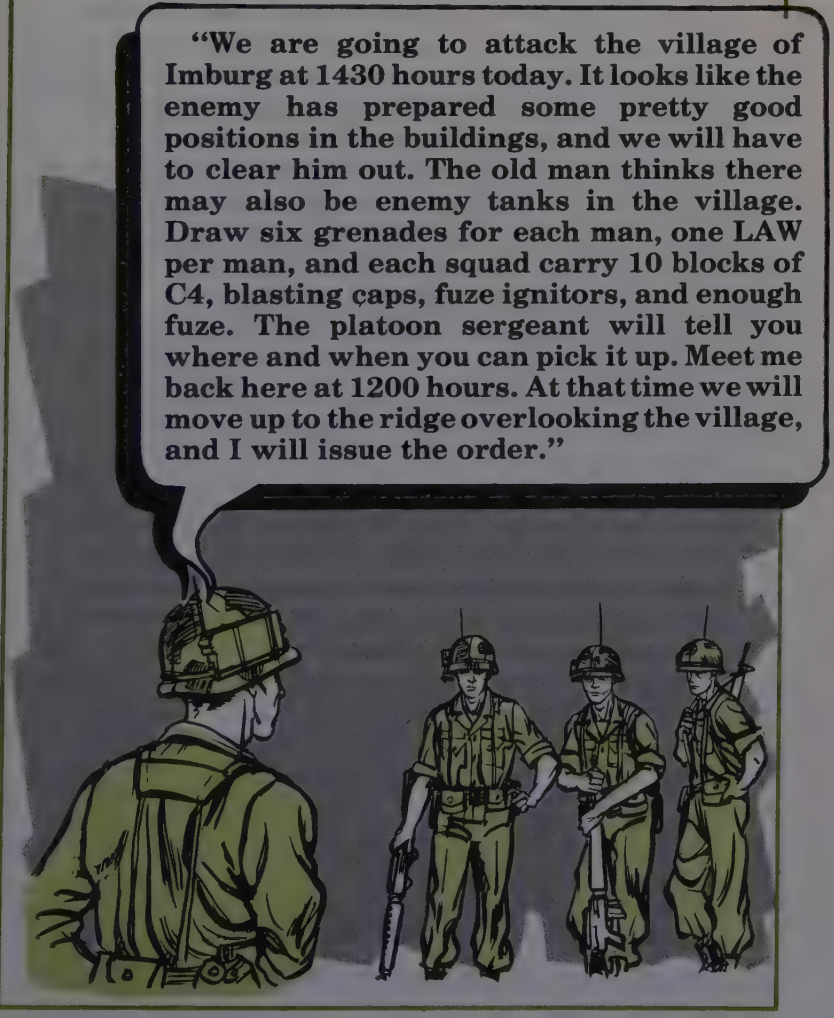
**GENERAL.** As squad leader, you must keep your men prepared for combat. You must make sure that they maintain their weapons, equipment, and ammunition; that they have enough food and sleep; that their standards of personal hygiene are high; and that they know what they are expected to do and how to do it. If you do this on a day-to-day basis, your squad will be ready for action.

This appendix addresses how you receive and issue orders for combat operations. As you read about how these things are done, keep in mind that you will not often have time to sit down and come up with a lengthy, detailed order. Your squad must be ready **(both physically and mentally)** to change missions on a moment's notice. Even when you don't have much time, the basic ideas expressed in this appendix will help you issue clear and complete instructions to your squad.

## THE WARNING ORDER

Initial instructions from the platoon leader will usually be in the form of a warning order. In the warning order, the platoon leader will give you enough information for your squad to begin preparation for the operation. Based upon the information that he has, the platoon leader's warning order will tell you what the mission of the

platoon is, when it is to take place, what preparations he wants you to make, and when he plans to issue the operation order.


"We are going to attack the village of Imburg at 1430 hours today. It looks like the enemy has prepared some pretty good positions in the buildings, and we will have to clear him out. The old man thinks there may also be enemy tanks in the village. Draw six grenades for each man, one LAW per man, and each squad carry 10 blocks of C4, blasting caps, fuze ignitors, and enough fuze. The platoon sergeant will tell you where and when you can pick it up. Meet me back here at 1200 hours. At that time we will move up to the ridge overlooking the village, and I will issue the order."

## ISSUE YOUR OWN WARNING ORDER

When you receive a warning order for an upcoming mission, quickly study it to see what your squad can do to prepare for action. Just by knowing the type of operation **(mission)**, you can get a lot accomplished before the platoon leader gives the complete order.

Many platoons develop SOPs that call for certain actions to be accomplished as soon as a warning order is received. For example, if the mission is to attack, the squads may automatically draw three HE grenades per man, two white smoke grenades per team leader, and three LAWs per fire team. Fire team leaders may load their M16 magazines with one tracer for each two rounds of ball ammunition, while riflemen load a one to four mix.

As soon as you have thought about the platoon warning order and decided what your men can do to get ready, assemble the entire squad (if the situation allows) and tell them what you want done. Do not waste their time -- get them started in their preparation as quickly as possible.

Based upon the platoon SOP and any special instructions in the warning order, tell your men as much as you know about the operation, and if you need to assign special tasks to some of your men tell them what you want done. Team leaders are responsible for the preparations made by the men in their team. They take notes on the squad leader's instructions to each man and insure that

the instructions are carried out. Although you may not have all of the details at this point, the warning order you give will alert your men to the upcoming mission and they will be better prepared to fight.

**"The platoon leader just told me that we are going to attack a village this afternoon at 1430 hours. The enemy is dug-in and probably has tanks with him so we have to be prepared to clear the buildings and knock out the tanks. We will carry six HE grenades and one LAW per man in addition to our standard load for rifles and grenade launchers. SGT Jones, your team will handle our demolitions -- draw 10 blocks of C4, 10 blasting caps and fuze ignitors, and 30 feet of fuze.** *Make sure you test-burn the fuze.*

**Private Smith, you carry a climbing rope and a grappling hook. Specialist George, you plan on carrying the TA-1, draw two rolls of assault wire. The platoon sergeant will be here in about 20 minutes to tell us where and when we can pick up our ammo and equipment. I'm leaving now to get the platoon order; SGT Jones is in charge until I get back. I may not be back in time, but for now plan on meeting here at 1315, and we will go over the plan in more detail."**

## THE OPERATION ORDER

The operation order from the platoon leader will give you the

### SITUATION:

Information on enemy and friendly forces to include the mission and intended actions of the company and adjacent platoons.

### MISSION:

What the platoon is to accomplish.

### EXECUTION:

The detailed plan for accomplishing the platoon mission.

Tasks (missions) of each squad.

## SERVICE SUPPORT:

Administrative information to include the plans for ammunition, resupply, and casualty evacuation.

## COMMAND AND SIGNAL:

Signals and other control measures to be used during the operation.

Initial location of the platoon leader, platoon sergeant, and the company commander.

## RECEIVING THE OPERATION ORDER

Whenever possible, the platoon leader will issue his order from a position that allows the squad leaders to see the ground they are going to operate on. The most important part of receiving an order is having a clear understanding of what your squad has to accomplish in relation to the ground and to the other squads. Unless you know exactly what the squad is supposed to do, what the other squads are doing, and where and when these actions are to be done, you can cause problems for the entire platoon. After hearing the entire order don't leave until all of your questions have been answered.

## THINK THROUGH THE PLATOON ORDER

As soon as you receive the order and understand the platoon leader's plan, take a few minutes to go over the notes you took. As you think about the platoon leader's order, answer these questions:

- **What MISSIONS did my squad receive?**
- **How much do I know about the ENEMY?**
- **How does the TERRAIN and WEATHER influence the operation?**
- **What SUPPLIES or EQUIPMENT do I need? Do I need to assign SPECIAL TASKS to anyone?**

## MISSION

In analyzing your mission, identify **exactly** what your squad is to accomplish. Be sure you know how much time you have to prepare your squad. Make sure you are aware of any restrictions or special tasks that apply to your squad.

A thorough understanding of the mission will allow you to establish a time schedule for your preparation. The platoon leader will tell you what time the operation is to begin and what time he wants the platoon ready to go. This allows you to allocate time to preparation of your squad. Identify the things your squad must do to get ready and working backwards from the "ready" time set by the platoon leader, allow your squad time to accomplish each task. This technique is called the **reverse planning sequence. For example:**

| | |
|---|---|
| **1115:** | **Platoon leader said to be ready.** |
| **1100:** | **Inspect assembly area.** |
| **1045:** | **Inspect squad.** |
| **0915:** | **Issue order to squad.** |
| **0900:** | **Finalize squad order.** |
| **0730:** | **Recon with platoon leader.** |
| **0630:** | **Receive platoon order.** |
| **0545:** | **Issue warning order to squad.** |
| **0530:** | **Receive platoon warning order.** |

Remember that your squad needs as much time as possible to prepare; don't use all of the available time preparing your order and then not allow your men any preparation time.

## ENEMY

Develop the best picture possible of exactly where the enemy is located, what his strength is, and what kind of weapons and equipment he has. Tell your men as much as you know about how to destroy or suppress the kind of enemy you are likely to meet.

Sometimes the enemy in a certain area will use the same pattern over and over. For example, if you know that the enemy habitually ambushes in the vicinity of trail junctions, make sure you tell your squad.

## TERRAIN AND WEATHER

In most cases, a squad attacks and defends as part of the platoon. Most decisions pertaining to route, objective, sectors of fire, positioning of key weapons, movement techniques, etc., are made by the platoon leader. However, you still must study every bit of ground if you are to properly employ your squad and gain an advantage over the enemy. **Proper use of terrain will:**

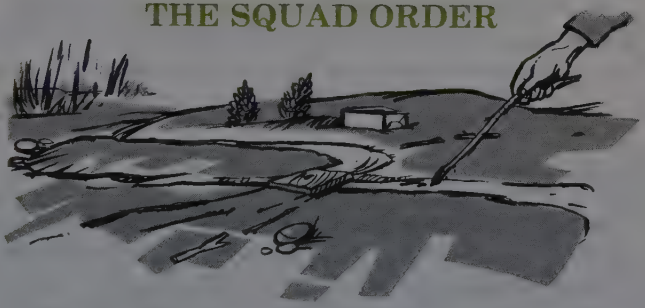
- **Cover and conceal the squad before, during, and after the battle.**
- **Increase the effectiveness of your fires.**
- **Decrease the effectiveness of the enemy's weapons.**

You must also understand how weather can influence your men. Cold, heat, rain, or snow can create problems if you don't prepare your squad properly.

## SUPPLIES, EQUIPMENT, AND SPECIAL TASKS

Look at your squad in light of the mission you are to accomplish. If you have been given a task that requires a special skill, such as setting demolitions to blow a building, does your squad know how to do it? Do you have the right kind of weapons, equipment, and supplies? If you feel you need help, or if you need something you don't have, make sure you inform the platoon leader.

## THE SQUAD ORDER



After you have received the operation order from the platoon leader and thought it through, you must issue your order to the squad. If you can, assemble the entire squad and issue your order from a position that lets your men see the ground on which they will operate. Many times this will not be possible, and you will have to sketch the terrain on the ground. Your men usually will not have maps, so don't try to give the order from your map – make the terrain model. By doing so you can show each man what you want him to accomplish, and the squad will have a better idea of what to expect once it gets on the actual terrain.

When you issue the order, remember to keep it as simple and complete as possible. Shown below is the format of a five-paragraph field order with a brief description of what goes into each paragraph. The purpose of this format is to help you prepare your order. Use it as a checklist to make sure you don't leave out something that your squad needs to know. Remember that it is a guide; give your order in language that you and your men can understand. For example, you may prefer to say, **"Now here's how we are going to get the job done," rather than, "Execution."**

## SQUAD ORDER

### ☑ SITUATION:

Information on enemy and friendly forces to include the location and mission of the platoon and other squads.

### ☑ MISSION:

What the squad must accomplish.

### ☑ EXECUTION:

Your detailed plan for accomplishing the squad's mission.

Tasks of teams and individuals. Tell each man what you want him to do, when to do it, and how to do it.

## SERVICE SUPPORT:

Administrative details, including where to draw ammunition and equipment, casualty evacuation, resupply, and how many rations to carry.

## COMMAND AND SIGNAL:

Signals and other control measures to be used.

Where you will be during the operation and where the platoon leader will be located.

## REHEARSALS

If time is available before an operation, the rifle squad should practice tasks it will perform. Noise and confusion will be so great during battle that success may depend upon individual confidence and ability to carry out assigned tasks. Rehearsals provide confidence and improve ability.

Rehearsals need not cover every step of the operation. Levels of individual training and leadership skills may make rehearsal of some steps unnecessary. Some key actions that may be rehearsed are:

- **FIRE AND MANEUVER**
- **BREACHING A MINEFIELD**
- **ASSAULTING A TRENCHLINE**
- **BREACHING WIRE OBSTACLES**
- **ASSAULTING A BUNKER**
- **USING SPECIAL WEAPONS DEMOLITIONS**
- **DISMOUNTING UNDER FIRE**

**Remember, rehearsals are important, so conduct them over terrain resembling the operational area and under the same light and battlefield conditions expected during the operation.**

## INSPECTIONS

The final duty you must perform prior to the actual conduct of any tactical operation is an inspection of your squad. A detailed and thorough inspection is absolutely necessary to insure that your men and equipment are prepared to execute the orders you have given. As a minimum, you must inspect:

**WEAPONS**

**AMMUNITION**

**MISSION ESSENTIAL EQUIPMENT**
**(Demolitions, starlight scopes, etc.)**

**ARMORED PERSONNEL CARRIER**

**(If mechanized, make sure carrier is topped off, maintenance has been performed, loading plan is correct.)**

**CAMOUFLAGE**

Time permitting, check and insure that only necessary equipment is carried. Be sure equipment is worn properly and is tied down so it does not rattle or fall off. In addition, check your men while checking their equipment. Are they physically prepared to undergo the tasks they must perform? Ask questions to insure they know their duties.

# APPENDIX D

## WEAPONS

To be successful in combat, you need to know the characteristics and capabilities of your weapons. This appendix describes the weapons with which your squad will train and fight.

The following terms apply throughout this appendix and whenever you are training or fighting.

*Fire Distribution.* **There are two ways in which direct fires can be placed on the target: (1)** ***Concentrated fire*** **is directed at a specific point which requires a high degree of accuracy, for example, an entire fire team or squad could fire at the same bunker. (2)** ***Distributed fire*** **is fired in depth and width so that an area target is effectively covered. The purpose of distributed fire is to cover an area, e.g., the squad leader wants to fire at a woodline -- he fires his weapons to mark the target area, men on his left fire to the left of his tracers, men on his right fire to the right.**

*Suppressive Fire.* **Suppression of enemy weapons prevents the enemy from shooting aimed or observed fire, thereby enabling friendly forces to move into position to destroy him. Enemy weapons are suppressed when they cannot hit friendly troops. Suppressive fires are an important part of any combat operation. Enemy infantry and vehicles can be suppressed by almost any type of fire of sufficient accuracy and volume. Any fire that forces tanks or personnel carriers to "button up" reduces the effectiveness of these vehicles. Accurate suppressive fire provides increased opportunities for friendly maneuver without great losses.**

*Classification of Fire.* **Rifle and machinegun fire is classified with respect to the ground and the target, firing both semiautomatic and automatic modes.**

- *Fire with respect to target:*

  **(1) *Frontal* - fires delivered straight into the front of the target.**

  **(2) *Flanking* - fires delivered into the flank of the target.**

(3) *Oblique* - fires delivered so that the long axis of the beaten zone is at an oblique to the long axis of the target.

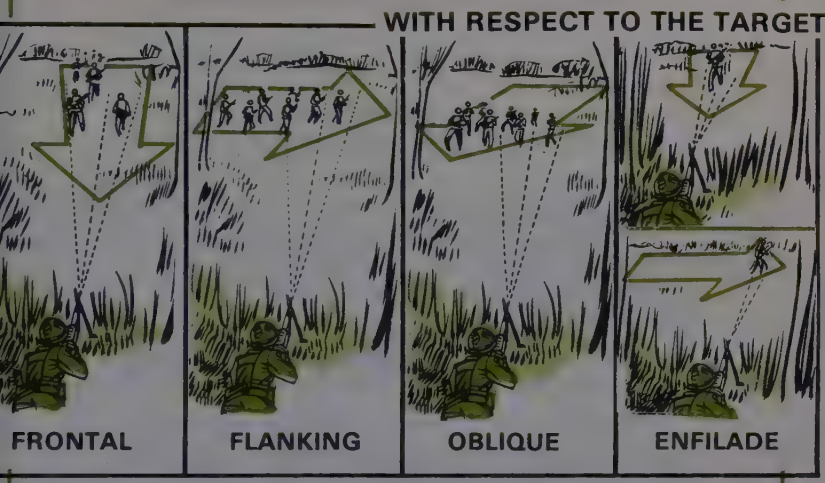
(4) *Enfilade* - fires delivered so that the long axis of the beaten zone is the same as the long axis of the target. This type of fire is either frontal or flanking and is the most desirable type of fire with respect to the target because it makes maximum use of the beaten zone.

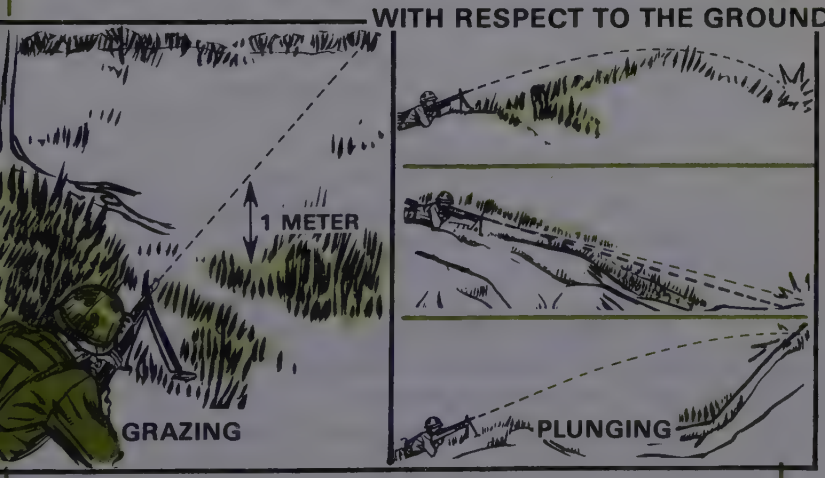
- *Fire with respect to the ground:*

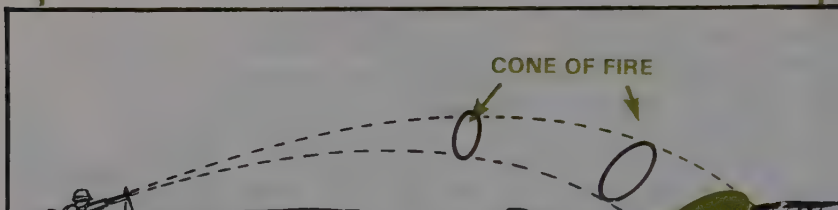
(1) *Grazing fire* is achieved when the center of the cone of fire does not rise above 1 meter from the ground.

(2) *Plunging fire* is achieved when the angle of fall of the bullets as they hit the ground is great enough to confine the danger space to the point of impact. Plunging fire is obtained when firing at long ranges, when firing from high ground to low ground, and when firing into abruptly rising ground.

# CLASSIFICATIONS OF FIRE






***Dead space*** **- areas within the maximum range of a weapon that cannot be covered by fire or observation.**

***Beaten zone*** **- the area on the ground upon which the cone of fire falls.**

***Cone of fire*** **- the cone-shaped pattern formed by the paths of a group of shots fired from a gun with the same sight setting. The cone is formed because the shots follow different paths as a result of gun vibration, variations in ammunition, wind changes, etc.**

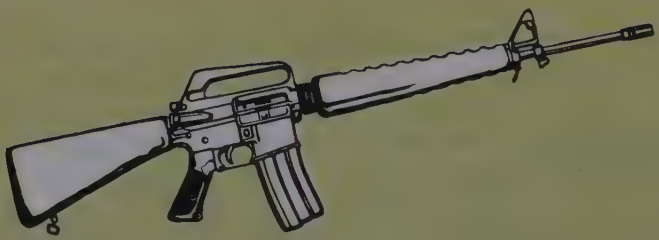
***Hangfire*** **- temporary failure or delay in firing. For example, after the trigger bar on a LAW is depressed, the rocket doesn't fire immediately (it should) but does after a few seconds.**

***Misfire*** **- a complete failure to fire.**

***Stoppage*** **- failure of a rifle or machinegun to extract or eject a spent case or to load or fire a new round.**

***Immediate action*** **- the procedure applied to reduce a stoppage or misfire without attempting to determine the cause.**

## M16A1 RIFLE



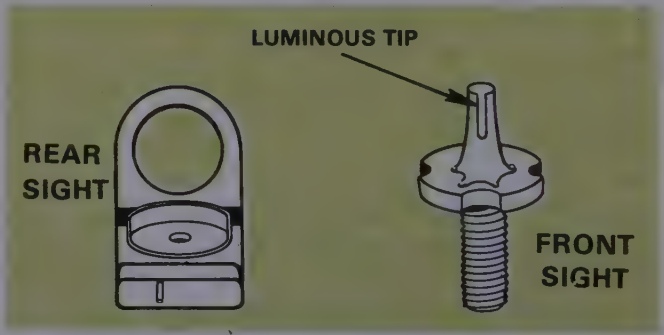
The M16A1 rifle is a caliber 5.56-mm, magazine-fed, gas operated, shoulder fired weapon. It is designed for either semiautomatic or automatic fire through the use of a selector lever. It can be fired from the prone, prone supported, prone bipod supported, kneeling supported, standing and foxhole positions. The firing positions providing the most stability for the rifleman (thereby increasing the probability of target hit) are the prone supported or foxhole supported for semi-automatic fire and the prone bipod supported for automatic fire. The night vision device which is mounted on the M16A1 rifle is the AN/PVS-2. The AN/PVS-2 should be mounted, boresighted, and zeroed on the M16A1 rifle IAW TM 11-5855-203-13 prior to employment at night.

## CHARACTERISTICS

| | |
|---|---|
| WEIGHT (LOADED) (20-RD MAGAZINE) | - 7.6 lbs (3.5 kg) |
| (30-RD MAGAZINE) | - 7.9 lbs (3.6 kg) |
| LENGTH (W/O BAYONET) | - 39 in (99cm) |
| RANGE AT WHICH A 50-50 CHANCE OF TARGET HIT CAN BE EXPECTED: | |
| RUNNING TARGET | - Less than 200m (probability of hit is 0.3 to 0.4) |
| STATIONARY TARGET | - 250m |
| MAXIMUM RANGE OF GRAZING FIRE | - 350m |
| MAXIMUM RANGE | - 2,653m |
| CYCLIC RATE OF FIRE | - 700-850 rds/ minute |
| SUSTAINED RATE OF FIRE (SEMI-AUTOMATIC) | - 12-15 rds/ minute |

## LOW LIGHT LEVEL SIGHT SYSTEM (LLLSS)

The Low Light Level Sight System (**LLLSS**), commonly called the promethium sight, is a modification of the standard sights on the M16A1 rifle issued to soldiers in infantry units. It is not a night sight. It is designed to allow the rifleman to better obtain sight/alinement during periods of reduced visibility (such as early morning, later evening, or bright starlight or moonlight). During these reduced visibility periods, if a soldier is able to see the target using the standard daylight vision techniques he should be able to aline the Low Light Level Sights and achieve target hit. The sight consists of a split post front sight which contains a vial of luminous material, and a modified rear sight that has a larger aperture.




The use of the promethium sight does not require altering any of the standard firing positions.

## MAGAZINE LOADING

### 30-round Magazine

The average 30-round magazine will function properly when fully loaded (30 rds). As these magazines are received in a unit, they should be issued first to the automatic rifleman.

### 20-round Magazine

The 20-round magazine should be loaded with only 16-18 rounds. Loading of additional ammunition may cause damage to the follower spring or jam the follower so that the magazine will not feed the ammunition correctly.

## IMMEDIATE ACTION

Immediate action to clear a stoppage with the M16A1 rifle is as follows:

1. **Slap up on the base of the magazine.**
2. **Pull the charging handle to the rear.**
3. **Observe the ejection port for the ejection of a spent cartridge case or live round.**
4. **Release the charging handle, allowing the bolt to go forward.**
5. **Tap the forward assist assembly to insure that the bolt is fully seated.**
6. **Shoot the weapon.**

## CARE AND CLEANING

*Cleaning Rifle.* **Clean and lightly lubricate with LSA the lugs in barrel extension, bore, and chamber. Clean and lightly lubricate the bolt carrier. Lubricate slide cam pin area, piston rings, outside bolt body, and in bolt carrier key.**

***(CAUTION: Apply only a light coat of LSA to firing pin and firing pin recess.)***

**Use rifle bore cleaning compound (RBC) to clean powder fouling in the upper receiver. Clean outside surface of protruding gas tube with a worn brush. Coat all other surfaces with lubricant. Apply a light coat of LSA to buffer, action spring, and inner surfaces of lower receiver extension. Use generous amount inside lower receiver and on all components.**

*Cleaning Magazine.* **Wipe dirt from inside magazine, spring, and follower, then lightly lubricate the spring. To maintain spring serviceability do not keep magazine loaded with ammunition over an extended period of time.**

*Cleaning Ammunition.* **Use a clean, dry cloth to wipe dirt and foreign matter from ammunition. Do not coat with oil.**

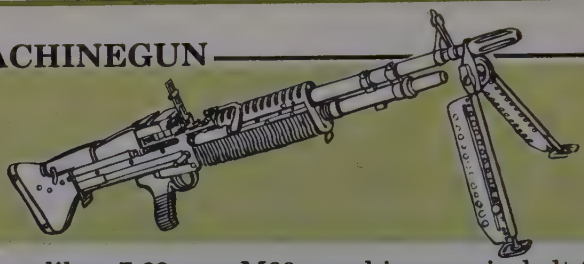
## REFERENCES


**FM 23-9, M16A1 Rifle and Rifle Marksmanship.**

**FM 23-12, Technique of Fire of the Rifle Squad and Tactical Application.**

**TM 9-1005-249-10, Operator's Manual, M16A1 Rifle.**

## M60 MACHINEGUN



The caliber 7.62-mm M60 machinegun is belt-fed, gas-operated and automatic. It is issued with an attached bipod mount and a separate tripod mount. The machinegun can be effectively fired using either mount. Firing from the prone position, using the M122 tripod mount, permits the gunner to maintain the most control and obtain the highest degree of accuracy. Certain vehicular mounts (such as the pedestal mount on the M151 jeep) are available for the M60. When standing, the machinegun is employed from the hip, underarm or shoulder firing position. In infantry units all personnel must be trained on the M60 machinegun.

The M60 machinegun is an excellent weapon to suppress ATGM gunners, vehicles, and troops. Its high volume of fire has the capability to suppress enemy elements until a maneuver force can get into position to destroy the enemy elements or bypass them. The night vision device which is mounted on the M60 machinegun is the AN/PVS-2. The AN/PVS-2 should be mounted, boresighted, and zeroed on the M60 machinegun IAW TM 11-5855-203-13 prior to employment at night. The latest modification to the M60 machinegun barrel locking lever (spring loaded) prohibits the mounting of the AN/PVS-2 on those machineguns so modified. Not all M60 machineguns have been modified; however, a new mounting bracket which will fit both the new and old barrel locking levers is being produced.

## CHARACTERISTICS

| | |
|---|---|
| WEIGHT OF MACHINEGUN | - 23 lbs (10.4 kg) |
| LENGTH OF MACHINEGUN | - 43.5 in (110.5cm) |
| MAXIMUM RANGE | 3,735m |
| MAXIMUM RANGE OF GRAZING FIRE | - 600m |

RANGES AT WHICH A 50-50 CHANCE OF TARGET HIT CAN BE EXPECTED FIRING BURST OF 6-9 ROUNDS

- 200m for moving point target (bipod mounted)
- 600m for a point target (bipod or tripod)
- 800m area target* (bipod mounted)
- 1100m area target* (tripod)

RATES OF FIRE:

| SUSTAINED | RAPID | CYCLIC |
|---|---|---|
| - 100 rds per min | - 200 rds per min | - In excess of 550 rds per min |

BASIC LOAD OF AMMUNITION - 600-900 rds

TYPES OF AMMUNITION

- Ball
- Tracer
- Armor Piercing

TRACER BURNOUT - 900m (approx)

*An area target is defined as the area in size that a fire team would occupy. The beaten zone of the machinegun coincides approximately with the area occupied by the fire team.

## IMMEDIATE ACTION PROCEDURES

If an M60 machinegun stops firing, the following actions are taken **within 10 seconds:**

**1. Cock the weapon, observing the ejection port to see if brass, link, or a round is ejected. Insure the bolt remains to the rear to prevent double feeding.**

**2. If brass, link, or a round is ejected, release the bolt handle chambering another round, relay on the target, and attempt to fire. If the weapon still does not fire, or if brass, link, or a round was not ejected, the weapon must be cleared, and the weapon and ammunition inspected to determine the cause of the stoppage.**

## CARE AND CLEANING

***To clean the M60,*** **use rifle bore cleaner (RBC) and a bore brush to clean the bore. After you have removed all of the fouling in the bore, use the chamber brush and RBC to clean the chamber.**

When the chamber is cleaned, use dry patches to remove the RBC from both the bore and chamber, then swab them with PL special. Next, clean off the face of the bolt and let it dry. Wipe off the rest of the gun to remove any dirt or bore cleaner that may be present, and then lubricate all moving parts with a light coat of LSA.

*Insure proper care and use of the barrels.*

1. In order to prolong the life of the barrels, to retain accuracy, and to allow continuous firing for prolonged periods, two barrel assemblies are issued with each gun.

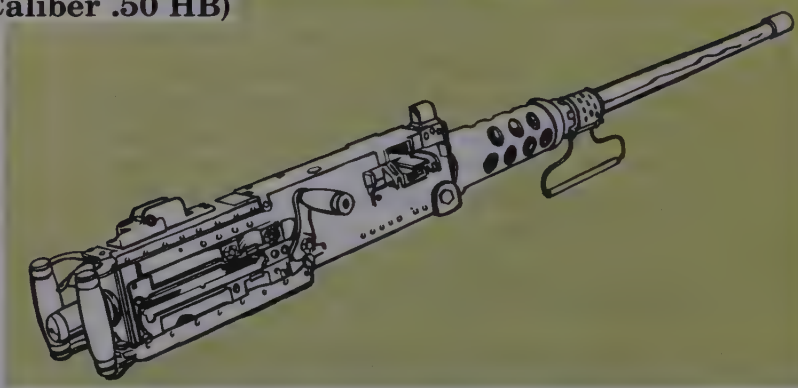
2. During continuous firing, the barrels are changed every 10 minutes, when firing at the sustained rate of 100 rounds per minute; every 2 minutes, when firing at the rapid rate of 200 rounds per minute; and every minute with firing at the cyclic rate which is in excess of 550 rounds per minute.

## REFERENCES:

TM 9-1005-224-10, Operator's Manual, M60 Machinegun

FM 23-67, Machinegun, 7.62-mm, M60.

## M2 BROWNING MACHINEGUN (Caliber .50 HB)



The caliber .50 machinegun is belt-fed, recoil operated, and air-cooled. It is capable of single-shot as well as automatic fire. The primary infantry vehicular mount is the cupola of the M113A1 Armored Personnel Carrier. When used in the ground mode, the machinegun is mounted on the M3 tripod mount or the M63 antiaircraft mount. When engaging ground targets from a stationary position, the caliber .50 machinegun is fired in bursts of 9-15 rounds. When firing at aircraft, a continuous burst is used rather than several short bursts. When firing on the move, long bursts of fire are walked into the target. Enemy ATGM gunners, vehicles, and troops can be suppressed with a heavy volume of fire from the caliber .50 machinegun, until a maneuver force can destroy or bypass the opposition. The night vision device which is mounted on the caliber .50 machinegun is the AN/TVS-2. The AN/TVS-2 should be mounted, boresighted, and zeroed on the caliber .50 machinegun IAW TM 11-5855-202-13, prior to employment at night.

## CHARACTERISTICS

| | |
|---|---|
| Weight of Machinegun | - 84 lbs (38 kg) |
| Weight of Tripod | - 44 lbs (20 kg) |
| Length of Machinegun | - 65 in (165.1cm) |
| Maximum Range of Grazing Fire | - 800m |
| Maximum Range | - 6,800m |

Range at which a A 50-50 CHANCE of target hit can be expected:

Tripod Mounted Firing Burst of 9-15 Rounds

- 700m against a man (point target)
- 1000m against an armored target
- 1600m against an area target

Cupola Mounted Stationary Vehicle Firing Burst of 9-15 Rounds

- 500m against a man (point target)
- 800m against an armored target
- 1000m against an area target

Cupola Mounted Moving Vehicle Firing Burst of 15-30 Rounds

- 300m against a fire team sized position
- 500m against a squad sized position (probability of hit reduced to 0.3)

Rates of Fire

| Sustained | Rapid | Cyclic |
|---|---|---|
| - 40 or less rds per min | - 40 or less rds per min | - 450-550 rds per min |

Burst of Fire used in Air Defense

- Continuous while target is in range

Types of Ammunition

- Ball
- Tracer
- Armor Piercing
- Armor Piercing Incendiary

Tracer Burnout - 2200m (approx)

## FIRING FROM AN APC

To place fires on target use this technique

- **Hold the weapon tightly to the chest.**
- **Aim (point) slightly low.**
- **Fire and walk the rounds onto the target.**
- **Cease fire when the rounds begin going high and repeat the process.**

***The gun does not have a safety, so when you are moving keep the weapon in the half-cocked position.***

## IMMEDIATE ACTION/CLEARING

If the caliber .50 machinegun fails to fire, the following actions are taken.

**(1) Pull the bolt to the rear and observe for ejection (round or brass ejected).**

**(2) Return retracting slide handle forward.**

**(3) Relay and attempt to fire.**

The following procedures are used when clearing the machinegun.

*Cold gun.*

**(1) Place weapon in single shot mode.**

**(2) Pull the bolt to the rear.**

**(3) Open the cover and remove the ammunition.**

**(4) Press the bolt latch release and ride the bolt forward.**

**(5) Pull the bolt to the rear.**

**(6) Inspect the chamber.**

**(7) Close the cover.**

**(8) Press the bolt latch release and ride the bolt forward.**

*Hot gun.*

**(1) A hot gun is a weapon which has fired more than 150 rounds in 2 minutes.**

**(2) To clear a hot gun, follow the steps for clearing a cold gun, except do not pull the bolt to the rear in steps (2) and (5). Simply press the trigger and fire the weapon. This prevents a cook-off outside the chamber.**

## CARE AND CLEANING

To clean the caliber .50 machinegun:

**(1) Disassemble the gun into its major groups or assemblies.**

**(2) Clean the bore and chamber, but do not oil them.**

**(3) Clean all metal parts thoroughly and apply a light coat of oil to all metal parts which do not come in contact with the ammunition.**

**Use rifle bore cleaner to clean the bore. When the bore is clean, dry it and any parts of the gun exposed to the bore cleaner. If you don't plan to use the weapon after cleaning, apply a thin coat of special preservative lubricating oil to the entire gun. If you do plan to use it, don't oil the bore or chamber.**

**When the bore cleaner is not available, hot or cold water can be used; however, warm, or hot, soapy water is recommended. After using soap and water, dry the barrel and apply a thin coat of special preservative lubricating oil.**

## REFERENCES

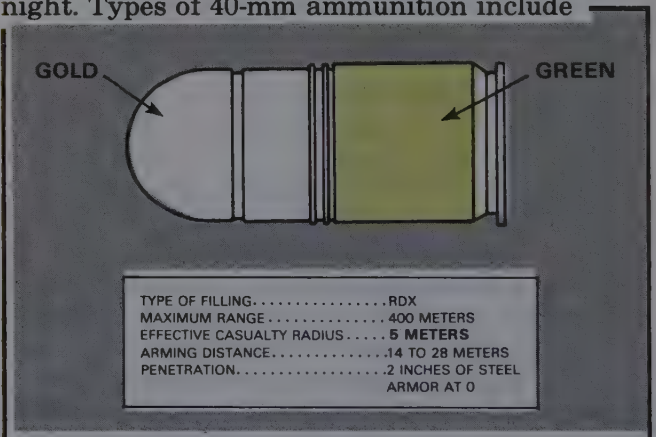
**FM 23-65, Browning Machinegun, Caliber .50 HB, M2.**

**TM 9-1005-213-10, Operator's Manual: Machinegun, Caliber .50, Browning, M2.**

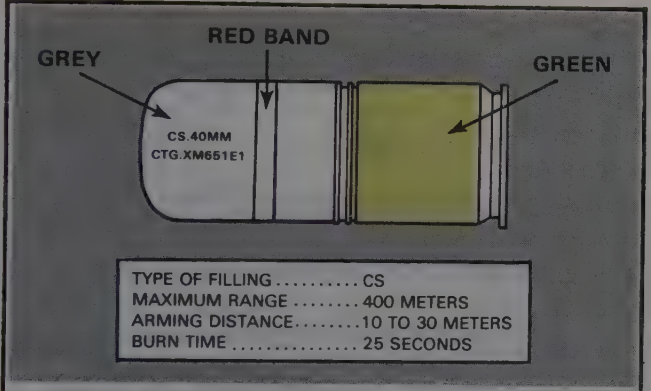
## DUAL PURPOSE WEAPON

The Dual Purpose Weapon (DPW) consists of the M203 40-mm grenade launcher attached to an M16A1 rifle. Information on the rifle is found in a preceding section. The grenade launcher is a single shot, breech-loaded, pump-action weapon which fires a variety of ammunition. The grenade launcher provides the squad with a means of both suppressing and neutralizing targets that are located in dead spaces of grazing fire weapons. The squad's grenadiers using 40-mm ammunition can suppress or disable enemy armored vehicles until other antitank weapons such as the TOW, Dragon, or LAW can destroy the vehicle. This weapon is also capable of penetration of concrete, timber, or sandbagged weapons positions or the penetration of structures found in built-up areas.

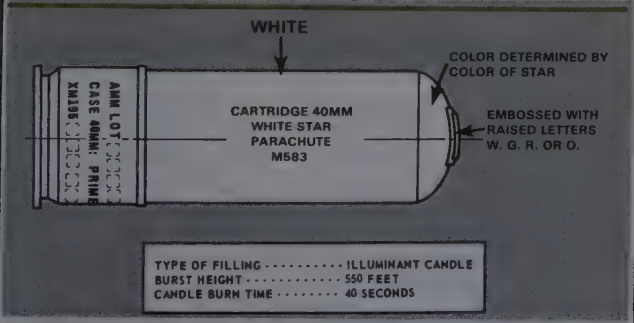
It also provides an illumination capability and a signalling capability to the squad. The firing positions providing the most stability for the gunner (thereby increasing the probability of a hit) are the standing supported and prone supported positions. The night vision device which is mounted on the DPW is the AN/PVS-4. The AN/PVS-4 should be mounted, boresighted, and zeroed on the DPW IAW TM 11-5855-213-10 prior to employment at night. This sight is used for firing both the rifle or the grenade launcher at night. Types of 40-mm ammunition include



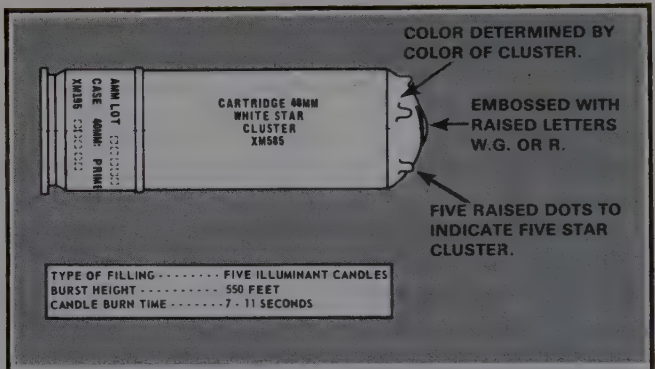

M433 High Explosive Dual Purpose (HEDP). This round can penetrate 2 inches (5cm) of armor plate at a range up to 400 meters. It has a 5-meter casualty radius against exposed troops.



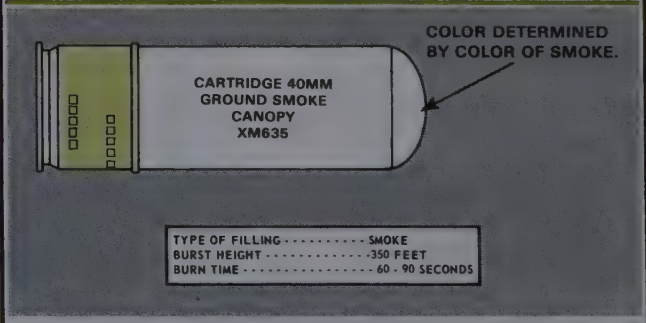

M651CS. Effective in driving the enemy from bunker positions or inclosed positions occupied in built-up areas.




Star parachute rounds, in white, red, and green, are effective signals and battlefield illuminants that can be placed 300 meters forward of the squad area, illuminating an area 200 meters in diameter for a period of 40 seconds.


COLOR DETERMINED BY COLOR OF CLUSTER.
AMM LOT
CASE 40MM PRIME
XM195
CARTRIDGE 40MM
WHITE STAR
CLUSTER
XM585
EMBOSSED WITH RAISED LETTERS W.G. OR R.
FIVE RAISED DOTS TO INDICATE FIVE STAR CLUSTER.
TYPE OF FILLING - - - - - - - - FIVE ILLUMINANT CANDLES
BURST HEIGHT - - - - - - - - - - 550 FEET
CANDLE BURN TIME - - - - - - - 7 - 11 SECONDS

Star clusters, in red, white, and green, are used for signalling. Caution - The green star cluster may appear white in bright sunlight.


COLOR DETERMINED BY COLOR OF SMOKE.
CARTRIDGE 40MM
GROUND SMOKE
CANOPY
XM635
TYPE OF FILLING - - - - - - - - - - SMOKE
BURST HEIGHT - - - - - - - - - - - - 350 FEET
BURN TIME - - - - - - - - - - - - - - - 60 - 90 SECONDS

Ground smoke, in red, yellow, and green, is used for spotting locations, and not for screening.

## CHARACTERISTICS

| | |
|---|---|
| WEIGHT LOADED (M16A1 and M203) | - 11 lbs (4.98 kg) |
| LENGTH | - 29 in (99cm) |

## 40-mm GRENADE LAUNCHER, M203

RANGES AT WHICH A 50-50 CHANCE OF TARGET HIT CAN BE EXPECTED:

| | |
|---|---|
| AREA TARGET (FIRE TEAM SIZE) | - 350m |
| POINT TARGET | - 200m |
| MAXIMUM RANGE | - 400m |

MINIMUM SAFE FIRING RANGES (HE & TP)

| | |
|---|---|
| TRAINING | - 80m |
| COMBAT | - 31m |
| MINIMUM ARMING RANGE | - 14-28m* |

BASIC LOAD FOR GRENADIER

| | |
|---|---|
| 40-mm GRENADES | - 36 rds |
| CAL 5.56-mm | - 140 rds |

*This must be considered in close-in firing such as MOBA to insure round will explode.

## IMMEDIATE ACTION

*COMBAT*

***In combat, should a misfire occur with the grenade launcher***

**1 Suppress the target using the M16-A1 rifle portion of the dual purpose weapon by firing one magazine in the semiautomatic mode.**

**2 Open the breech of the M203 and gently remove the 40-mm round.**

**3 After the round has been removed, inspect it to see if the round or the firing mechanism is defective. First examine the primer to see if it has been dented. If the primer has been dented, immediately reload the weapon with another round and resume firing. Keep the bad round separate from other ammunition.**

**4 If the primer has not been dented, the firing mechanism is at fault. The round may be reloaded and fired after the cause of the failure to fire has been corrected.**

***Should a misfire occur in training***

**1. Shout *"MISFIRE"* and wait 30 seconds before extracting the misfire round.**

**2. Follow steps 2, 3, and 4 as you would in combat.**

## CARE AND CLEANING

The grenade launcher must be cleaned after it has been fired because firing produces deposits of primer fouling, powder ashes, carbon, and metal fouling. These deposits may collect moisture and promote rust if not removed.

***Cleaning materials.***

- **Rifle bore cleaner (RBC) is used to clean the bore of the launcher and provide temporary protection from corrosion.**
- **Any drycleaning solvent that does not contain acid can be used for cleaning the launcher of dirt, grease, oil, or corrosion preventives.**

*Lubricants.*

**Military lubricant MIL-L-46000A (LSA) is used for lubricating the launcher at temperatures of -35°F and above.**

Lubricating oil, Arctic weather MIL-L-14107B is used at temperatures below 0°F.

*Cleaning the launcher and ammunition.*

*Bore.* **Attach a clean, dry rag to the thong and thoroughly moisten the rag with bore cleaner. After pulling the rag through several times, attach the bore brush to the thong and pull it through the bore several times. Repeat, using dry rags, inspecting the rag each time. Finally, pull a lightly oiled (LSA) rag through the bore to leave a light coat of oil inside the barrel. When cleaning the bore, the bore brush and rags should be pulled from the breech end to the muzzle end.**

*Breech insert.* **Clean the face of the breech insert retainer with a patch and bore cleaner. Remove the bore cleaner with dry rags, and then oil the face of the breech lightly.**

*All other parts.* **Use a brush and dry rag to clean all other parts and surfaces. Apply a light coat of LSA to the exterior of the launcher after cleaning. For cleaning the rifle portion of the launcher, see the section covering M16A1 rifle.**

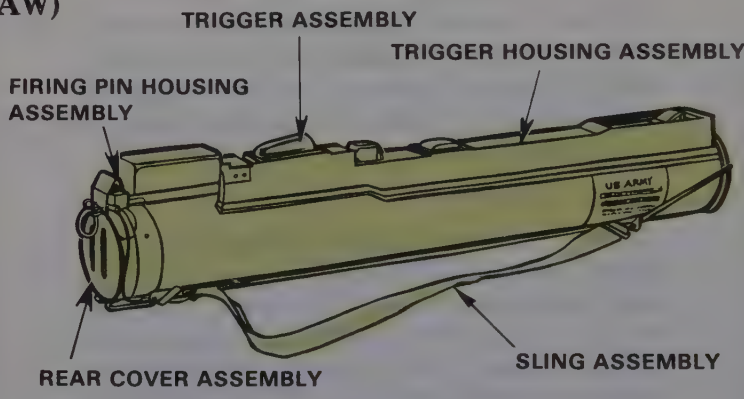
*Ammunition.* **Wipe any dirt or grime from ammunition with a dry cloth. If ammunition is corroded, turn it in to the ammunition point. Do not oil ammunition.**

## REFERENCES

**FM 23-31, 40-mm Grenade Launchers M203 and M79.**

**TM 9-1010-221-10, Operator's Manual: 40-mm Grenade Launcher, M203.**

## M72A2 LIGHT ANTITANK WEAPON (LAW)




The LAW is a self-contained unit consisting of a 66-mm HEAT rocket packed in a disposable fiberglass and aluminum launch tube. Its light weight coupled with its ability to penetrate in excess of 20cm of armor, gives you a weapon which can be readily employed by all of your soldiers to engage enemy armor, bunkers, or other hardened targets out to a range of 200 meters. The firing positions providing the most stability for the gunner (thereby increasing the probability of target hit) when firing the LAW are the standing supported, prone, and prone supported positions. The night vision device which is mounted on the M72A2 LAW is the AN/PVS-2. The AN/PVS-2 should be mounted and boresighted on the M72A2 LAW IAW TM 11-5855-203-13, prior to employment at night.

## CHARACTERISTICS

| | |
|---|---|
| WEIGHT (COMPLETE) | - 5.2 lbs (2.36 kg) |
| LENGTH (CLOSED) | - 26 in (66cm) |
| LENGTH (EXTENDED) | - 35 in (89cm) |
| VELOCITY | - 475 fps @ 70°F (145 mps @ 21°C) |
| MAXIMUM RANGE | - 1000m |

RANGES AT WHICH A 50-50 CHANCE OF TARGET HIT CAN BE EX PECTED:

| | |
|---|---|
| STATIONARY | - 200m |
| MOVING | - 150m |
| MINIMUM ARMING RANGE | - 10m |
| ARMOR PENETRATION | - 8 in (20cm) |

## RANGE DETERMINATION

The probability of hitting a target with the M72A2 LAW is significantly increased if the gunner knows the range to the target. The following methods can be used to determine range: rangefinders, measurement of the distance by map inspection, intersection using compasses, pair and sequence firing method, pacing, use of direct fire weapons such as machineguns, and visual range estimation. Visual range estimation is the least desirable method due to its inaccuracy. After the ranges to probable target locations have been determined, they should be recorded on a sector card for ready reference.

## METHODS OF ENGAGEMENT

There are four methods of engagement with the M72A2 LAW. They are: single, sequence, pair, and volley firing.

### (1) Single Firing.

In single firing, a target is engaged by one individual, firing one LAW, with no succeeding shots. This method should be used only at very short ranges -- 50 meters or less. Beyond this range, one individual firing a single LAW at a target is relatively ineffective, because the chances of a first round hit/kill are relatively low.

### (2) Sequence Firing.

In sequence firing, the target is engaged by only one gunner who is equipped with two or more LAWs. Prior to firing, the gunner should extend several launchers. After firing the first LAW, the gunner observes the impact of the round. If he achieves a hit, he should continue to fire using the same sight picture until the target is destroyed. If the first round misses, he should make adjustments to the range and lead of succeeding rounds until a target hit is achieved. The gunner continues to fire until the target is destroyed. One gunner having two or more LAWs prepared constitutes sequence firing regardless of whether a target hit is achieved with the first round.

### (3) Pair Firing.

In pair firing, two or more gunners, equipped with two or more LAWs, engage a target. Each gunner inspects and prepares several LAWs. The gunners exchange information when engaging a target. The first gunner seeing the target identifies the target, announces the estimated range and lead he will use (**Example:** TANK, 150 METERS, FAST TARGET) and fires. The second gunner announces a revised estimate of range and lead (if appropriate) and fires. The gunners continue exchanging range and lead information until a target hit is achieved. Once the range and lead have been determined, all gunners, on command, will engage the target until it is destroyed. Two or

(SEE FOLD OUT PAGE 465)

more gunners who have prepared two or more LAWs and who exchange information will constitute pair firing, regardless of whether a target hit is achieved with the first round. Under ideal conditions pair firing is preferred over sequence firing since it permits the gunners to obtain target hits faster, i.e., gunners firing the succeeding shots can be ready to fire as soon as the previous round impacts, whereas in sequence firing, the gunner must get another LAW, determine a sight picture again, and fire.

### (4) Volley Firing.

In volley firing, a target is engaged **simultaneously** by more than one gunner, each gunner firing one or more LAWs in sequence. Shots are fired on command or predetermined signal (**Example:** TANK, 150 METERS, FAST TARGET, VOLLEY FIRE, READY, AIM, FIRE) until the target is destroyed. Each gunner prepares two or more LAWs. Volley firing is used **only** when the range and lead to the target have been determined. It can be a result of pair firing after a target hit has been achieved, or after the range has been calculated by pacing, using range finders, maps,

and/or target reference points. The volley method is desirable because more rounds are fired at a target at a given time. This will increase the probability of hitting the target.

The preferred methods of engagement are pair and volley fire. Pair firing has the advantage of having two or more gunners track the target simultaneously. A miss by the first gunner will result in the second round being rapidly fired with the revised estimation of range and leads. A high volume of antitank fire can be achieved in the minimum amount of time by using volley firing. If pair and/or volley firing cannot be implemented, the sequence firing method of engagement should be used. One gunner firing two or more weapons can produce a volume of antitank fires on the target. Finally, there will be situations where only single firing can be used. A well trained gunner can successfully engage a target with a single LAW providing the target is at a close range (50 meters or less).

Regardless of the method of engagement used, the closer the armored vehicle, the greater the probability of first round hit.

## IMMEDIATE ACTION HANGFIRES AND MISFIRES

A failure to fire with the LAW may be either a hangfire or a misfire. Since the gunner cannot distinguish between a hangfire and a misfire, he must treat any failure to function as a hangfire and follow this procedure—

**1. Immediately resqueeze the trigger bar.**

**2. Return the arming handle to safe.**

**3. Remove LAW from shoulder and collapse and re-extend (insuring his hands are clear of the front and rear tube openings).**

**4. Arm the LAW, aim and fire.**

**5. If the LAW again fails to fire, return to safe, remove from shoulder, collapse the tube (this prevents the firing mechanism from functioning) and discard for a new LAW.**

**NOTE: Do not leave an intact LAW on the battlefield; the enemy can use it.**

## Training Misfire Procedures

1. Immediately resqueeze the trigger bar.

2. Announce misfire.

3. Wait 10 seconds, keeping the weapon pointed on target.

4. Return safety handle to the SAFE position.

5. Take launcher off the shoulder.

6. Keep the launcher pointed downrange for 1 minute.

7. Depress the detent and collapse the launcher approximately 4 inches.

8. Re-extend the launcher to the fire position.

9. Check backblast area.

10. Place the weapon on the shoulder, move trigger safety handle to the arm position, aim, and attempt to fire. If the launcher fails a second time, repeat steps 1 through 5. Do not collapse the launcher a second time, but call EOD to dispose of the complete unit (in training), or dispose of it in accordance with your unit SOP.

## CARE AND CLEANING

No maintenance is required for LAW beyond keeping the exterior clean and protecting it from physical damage. Prior to employing the LAW check it to insure that it is safe to fire. If it is dented badly, don't try to use it.

## REFERENCES

**FM 23-33, 66-mm HEAT Rocket M72A2, and M72.**

**TM 9-2340-214-10, 66-mm Light Antitank Weapon (LAW) System M72A1 and M72A2.**

**TM 9-1340-214-12, Operator and Organizational Maintenance Manual, 66-mm Light Antitank Weapon System M72 Series.**

**TM 9-1340-203-20, Rocket Launcher, M190 with Subcaliber 35-mm Practice Rocker, M73.**

## M202A1 MULTISHOT ROCKET LAUNCHER 66-MM

The M202A1 Rocket Launcher is a lightweight, four tube, 66-mm rocket launcher which is aimed and fired from the right shoulder in the standing, kneeling, or prone positions. The launcher is capable of firing from one to four rockets semiautomatically at a rate of one rocket per second and of being reloaded with a new clip of four rockets. The brilliant splash of the bursting incendiary warhead makes it an excellent weapon to suppress RPG and Sagger missile firing sites, and when fired in proximity of armored vehicles will normally make the crew "button up." The most stable position from which to fire the M202A1 Rocket Launcher is the standing supported position. When firing from the foxhole, there are two limiting factors. First, overhead cover can limit the elevation of the launcher and therefore the range. Second, when elevating the launcher, care must be taken to insure the rear of the launcher is outside the fighting position so that the backblast is not deflected at the gunner. Currently, there is no night vision device for the M202A1 Rocket Launcher.

## CHARACTERISTICS

| | |
|---|---|
| WEIGHT (LOADED) | - 26.6 lbs (12.1 kg) |
| LENGTH (CLOSED) | - 27 in (68.5cm) |
| LENGTH (EXTENDED) | - 35 in (88.9cm) |
| RANGES AT WHICH A 0.5 PROBABILITY OF TARGET HIT CAN BE EXPECTED: | |
| AREA TARGET (FIRE TEAM SIZE) | - 500m |
| POINT TARGET | - 200m stationary vehicle or uncovered position<br>- 50m bunker aperture |
| MINIMUM ARMING RANGE | - 6-13m |
| BURSTING RADIUS OF ROCKET WARHEAD | - 20m |

### *Combat Misfire Procedures*

**1. Squeeze the trigger four times after the last misfired rocket to clear the weapon of rockets, including the one which has misfired. If this clears the weapon, remove the empty clips and inspect the launcher before firing again.**

**2. If this does not clear the weapon, place the trigger safety in the "safe" position, keeping the weapon pointed toward the enemy, lower it from your shoulder and place it on the ground, resting on the front and rear dust covers.**

**3. Grasp the side of one clip tube and remove the clip latch to separate the firing pin mechanism from the clip. If separation does not occur, carefully insert a blade between the firing pin mechanism and clip manifold and apply pressure to obtain at least an inch separation.**

**4. Grasp the side of one clip tube and remove the rocket clip, *do not use the bail handle.***

**5. Place the rocket clip on the ground as far away from your position as practical (50m desirable).**

**6. Inspect the launcher prior to loading again.**

*Training Immediate Action:*

**1. In a training environment shout *"MISFIRE"*. Keep the launcher pointed at the target.**

**2. Squeeze the trigger four times after the last misfired rocket to clear the weapon of rockets, including the one which misfired. If this clears the weapon, remove the empty clip and inspect the launcher before firing again.**

**3. If this does not clear the weapon, place the trigger safety in the "safe" position and keep the weapon on the shoulder pointed downrange for 1 minute.**

**4. Keeping the weapon pointed downrange, lower it from the shoulder and place it on a firm surface, resting on the front and rear dust covers.**

**5. Remove the clip latch to separate the firing pin mechanism from the clip.**

**6. Grasp the side of one clip tube, depress the rocket clip release button, and remove the rocket clip.**

**7. Place rocket clip on ground away from launcher.**

**8. Dispose IAW unit SOP.**

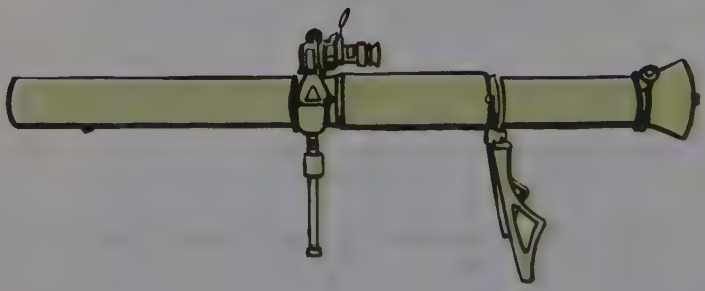
## CARE AND CLEANING

No maintenance is required other than keeping it clean and insuring that it doesn't get dented or bent.

## REFERENCE

**TM 3-1055-456-12, Operator's and Organizational Maintenance Manual: Launcher, Rocket: 66-mm, 4-Tube, M202A1**

## M67 90-MM RECOILLESS RIFLE



The M67 90-mm recoilless rifle is a lightweight, portable, crew-served weapon which can be employed in both antitank and antipersonnel roles. It can be fired from the ground using the bipod and monopod or from the shoulder. It is an air-cooled, breech loaded, single fire rifle that fires fixed ammunition. The firing position which provides the greatest stability (and therefore increases hit probability) is the prone position. The AN/PVS-2 is the night vision device which is mounted on the 90-mm recoilless rifle. The AN/PVS-2 should be mounted, boresighted, and zeroed IAW TM 11-5855-203-13 prior to employment at night.

## CHARACTERISTICS

| | |
|---|---|
| WEIGHT (COMPLETE WITH SIGHT) | - 37.5 lbs (22 kg) |
| LENGTH | - 53 in (135cm) |
| MAXIMUM RANGE (APPROX) | - 2100m |
| ARMING RANGE | - 30-35m |

RANGE AT WHICH A 0.5 PROBABILITY OF HIT CAN BE EXPECTED

- 300m stationary target

200m moving target

TELESCOPE, M103A1 FIXED FOCUS, 3 POWER MAGNIFICATION, 10° FIELD OF VIEW.

AMMUNITION:

HEAT (High explosive antitank)
Cannister (antipersonnel)
Target Practice

## IMMEDIATE ACTION - MISFIRES

Procedures for handling a 90-mm recoilless rifle misfire are as follows:

**Combat Misfire:**

1. **Resqueeze trigger.**

2. **Assistant gunner removes round and reloads with a new round.**

**Training Misfire:**

1. **Gunner calls MISFIRE.** ***(Shouting "misfire" applies only to training.)***

2. **The loader repeats MISFIRE and waits 1 minute.**

3. **The loader unlocks and then closes the breech and calls UP. The gunner attempts to fire.**

**4. Should the rifle still fail to fire, the gunner calls MISFIRE.**

**5. The loader repeats MISFIRE and waits 1 minute.**

**6. The loader opens the breech and unloads the round, being careful to catch the round as it is extracted.**

**7. The loader loads another round and the gunner attempts to fire.**

## CARE AND CLEANING

The crew is responsible for cleaning, inspecting, and lubricating the recoilless rifle as outlined in TM 9-1015-223-12 and FM 23-11.

## REFERENCES

**TM 9-1015-223-12, Operator and Organizational Maintenance Manual for 90-mm Recoilless Rifle, M67**

**FM 23-11, 90-mm Recoilless Rifle, M67**

## M47 DRAGON MEDIUM ANTITANK WEAPON (MAW)

The M47 Dragon is a command to line of sight guided missile system which is a man-portable, shoulder-fired, medium antitank weapon (MAW). The missile is launched from a smooth bore, fiberglass tube, recoilless launcher. The missile is automatically and continuously guided along the gunner's line of sight by a sensor device which tracks the missile's course and transmits correcting signals via a wire link. The Dragon consists of two major components, the tracker and the round. The round is the expendable part of the system and has two major parts, the launcher and the missile, which are packaged together at the factory for handling and shipping. The launcher serves as the handling and carrying container and the tube for firing the missile. The tracker is the reusable part of the system. It is designed for fast, easy detachment from the round.

## CHARACTERISTICS

| | |
|---|---|
| WEIGHT (CARRY) | - 31.9 lbs (14.5 kg) |
| WEIGHT (TRACKER) | - 6.8 lbs (3.1 kg) |
| WEIGHT OF (ROUND) | - 25.2 lbs (11.4 kg) |
| LENGTH | - 45.5 in (115.4cm) |
| DIAMETER | - 11.5 in (29.2cm) |
| MINIMUM RANGE | - 65m |

**A 70 PERCENT CHANCE OF TARGET HIT CAN BE EXPECTED**

- Over the entire range spectrum of 65-1000m providing the target is moving at a speed of 35 kph or less.

| MAXIMUM RANGE | TRACKER |
|---|---|
| - 1000m | Electro Optical with 6-Power Magnification |

## IMMEDIATE ACTION HANGFIRES AND MISFIRES

**Combat Situation:**

In a combat situation, having already squeezed the trigger and experienced a failure to fire:

*In All Cases*

**(1) Resqueeze the trigger.**

**(2) If the missile still fails to fire, track for 15 seconds.***

**(3) Check the battery for heat.**

*If Battery is Hot*

**(4) Remove the tracker.**

**(5) Place the round a safe distance away from you.**

**(6) Secure another round.**

**(7) Reattempt firing.**

*If Battery is Cold*

**(4) Reseat the tracker.**

**(5) Reattempt firing.**

**(6) If the round still fails to fire, replace the round.**

**(7) Reattempt firing.**

**(8) If the round still fails to fire, replace the tracker if another is available.**

**(9) Reattempt firing.**

***If other friendly personnel are in the vicinity, you may want to announce misfire.**

**Training Situation:**

In a training situation, having already squeezed the trigger and experienced a failure to fire:

*In All Cases*

**(1) Resqueeze the trigger.**

**(2) If the missile still fails to fire, track for 15 seconds.**

**(3) Announce misfire.**

**(4) Check the battery for heat.**

*If Battery is Hot*

**(5) Continue to track for 5 minutes.**

**(6) If the missile has not fired, place on ground with warhead downrange.**

**(7) Notify EOD, wait 30 minutes.**

**(8) After 30 minutes, remove tracker.**

**(9) Secure another round.**

**(10) Fire.**

*If Battery is Cold*

**(5) Reseat the tracker.**

**(6) Reattempt firing.**

**(7) Repeat steps 1 thru 4 if fails to fire.**

**(8) If hot, treat as hot battery misfire; if cold—**

**(9) Remove tracker.**

**(10) Leave round pointed down-range.**

**(11) Place tracker on another round.**

**(12) Attempt to fire.**

**(13) Repeat steps 1 thru 4 if fails to fire.**

**(14) If battery cold, replace tracker.**

**(15) Place new tracker on 1st round and attempt to fire.**

## CARE AND CLEANING

No maintenance is required on the round other than keeping it clean and insuring that it doesn't get dented or bent. The tracker is cleaned and inspected as outlined in the operator's manual, which is stored in the tracker carrying bag. Make sure that your men know that they should never try to clean the weapon once the tracker is mated to the round.

## REFERENCES

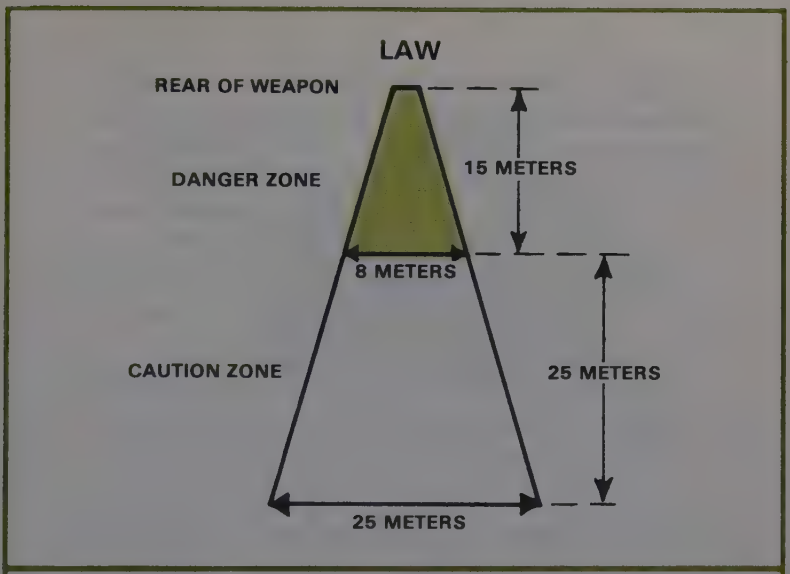
**TC 23-24, Dragon Medium Antitank Assault Weapon System, M47.**

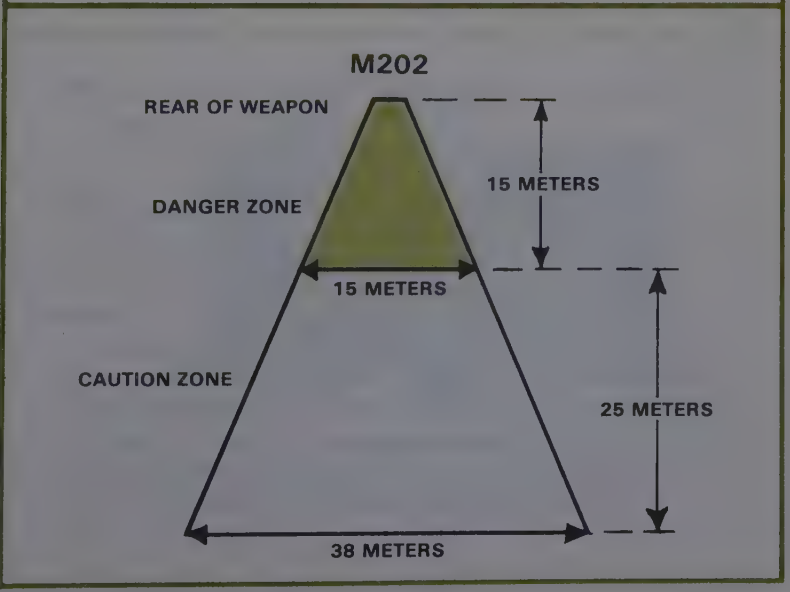
**TC 23-24-1, Firing the Dragon from the M113.**

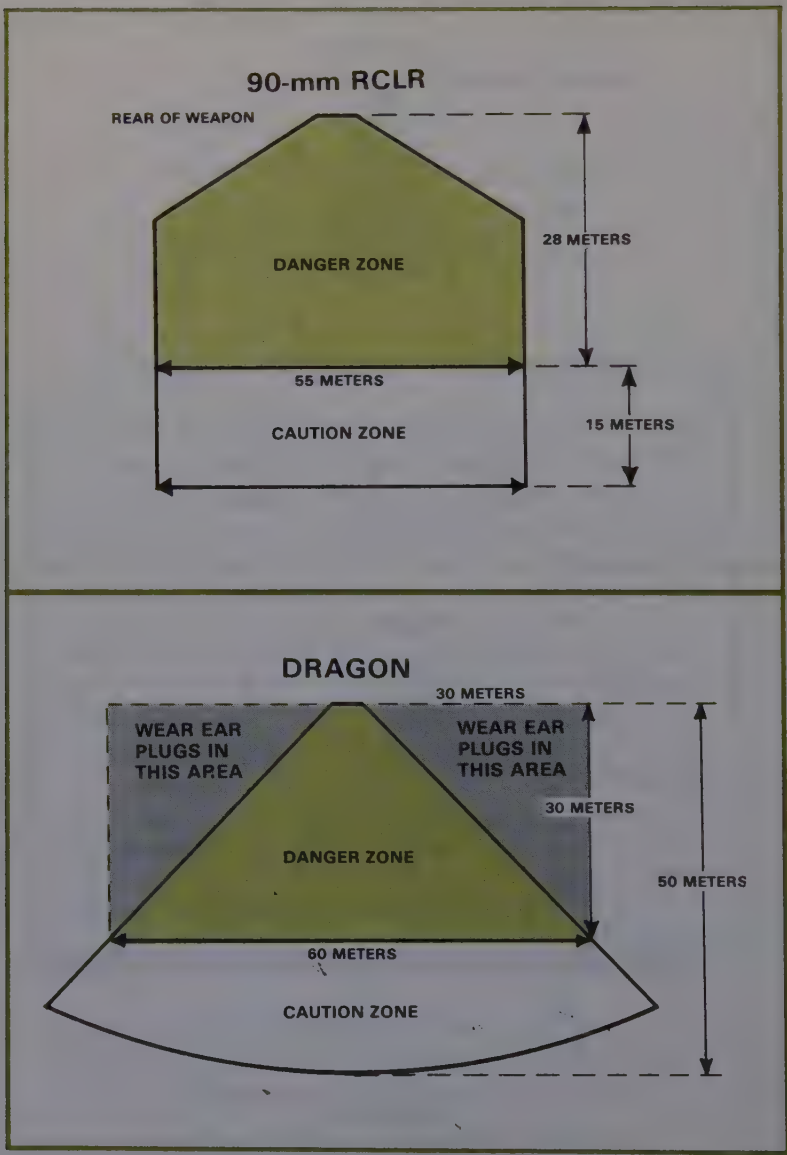
**TM 9-1425-480-10, Operator's Manual: Dragon Weapon System, M47.**

## CONSIDERATIONS FOR RECOILLESS WEAPONS

**Backblasts.** The LAW, M202, 90-mm RCLR, and Dragon all have backblasts that can kill if anyone is too close to the rear of the weapon when it is fired. The diagrams below provide a guide for the clearances you need to fire the weapons. In each diagram the **danger zone** is the area where the force of the backblast will kill or seriously injure anyone in the area. Even in combat the danger zone must be clear before firing. The **caution zone** is the area where injuries could be caused by flying debris and where noise levels could cause ear damage. Stay clear of this area during training. In combat it may be necessary to position soldiers in the caution zone, but if you do, make sure they wear earplugs and helmets and stay down when the weapon is fired.


LAW
REAR OF WEAPON
DANGER ZONE
15 METERS
8 METERS
CAUTION ZONE
25 METERS
25 METERS


M202
REAR OF WEAPON
15 METERS
DANGER ZONE
15 METERS
CAUTION ZONE
25 METERS
38 METERS


90-mm RCLR
REAR OF WEAPON
DANGER ZONE
28 METERS
55 METERS
CAUTION ZONE
15 METERS
DRAGON
30 METERS
WEAR EAR PLUGS IN THIS AREA
WEAR EAR PLUGS IN THIS AREA
30 METERS
DANGER ZONE
50 METERS
60 METERS
CAUTION ZONE

**Firing in Buildings.** All of the recoilless weapons which the squad may use in combat can be fired from inside of buildings. However, before you fire a Dragon, LAW, or M202 from inside of a room, make sure that –

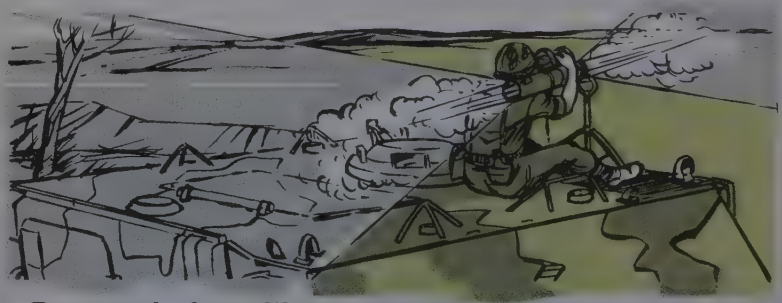
- **The building is of sturdy construction -- concrete or stone is best.**
- **There is at least 20 square feet of ventilation (room openings). An open door 7x3 feet provides 21 square feet.**
- **Glass is removed from all windows and doors.**
- **Everyone in the room is forward of the rear end of the weapon.**
- **Everyone in the room wears earplugs and a helmet.**

When firing the Dragon, the floor size of the room should be at least 15x12 feet and the ceiling should be at least 7 feet high. Additionally, you need at least 6 inches of clearance between the bottom of the opening and the tube. The launcher should extend 6 inches out of the opening.

The LAW can be fired from much smaller rooms than can the Dragon, but make sure you have 20 square feet of ventilation and that there is at least 4 feet of clearance from the rear of the LAW to the nearest wall.

**Firing from APCs.** Recoilless weapons can be fired from the APC. TC 23-24-1, Firing the Dragon from the M113, illustrates the proper positions for the Dragon. These positions, and the safety precautions that must be taken, are generally applicable to the 90-mm RCLR, LAW, and M202.

**Keep all personnel and movable objects clear of the muzzle blast and backblast.**



Personnel, the caliber .50 machinegun, radio antennas, combustible material, and ammunition **must be clear** of the muzzle blast and backblast during firing. The driver's hatch, track commander's hatch, and the cargo hatch must be closed if they are in either the muzzle blast or backblast area.

## COMMUNICATIONS

The squad leader must have a means of communication to control his squad, respond to the platoon leader's instructions, and render reports as appropriate. Preparation for every operation must include communication planning, training, and maintenance.

## SOUND AND VISUAL

Squad leaders must often communcate by means other than voice or written messages. Prearranged signals provide communication for control and coordination between the squad leader and his men. Signals must be given correctly and distinctly so they cannot be misunderstood, and practiced until their use becomes second nature.

## VISUAL COMMUNICATION

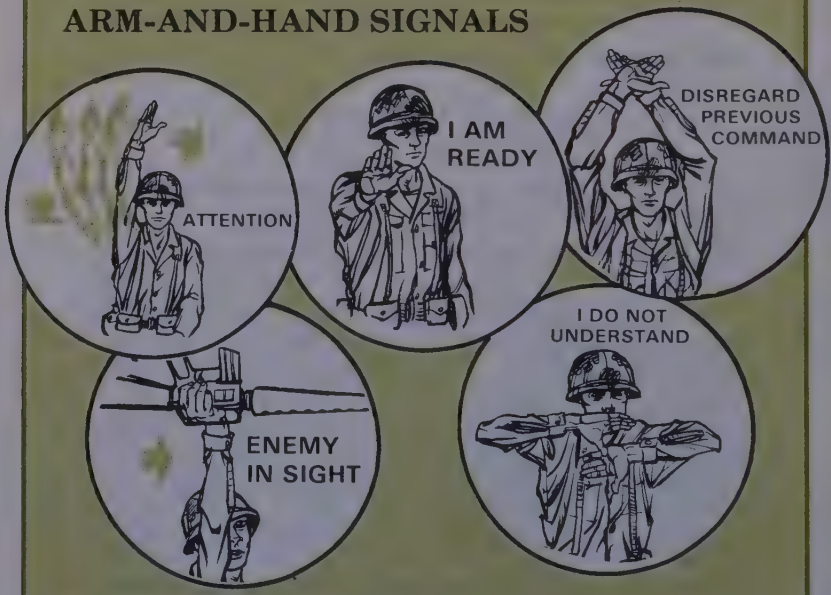
### ADVANTAGES

Visual signals are used for transmitting messages quickly over short distances and for identifying friendly troops. They are most useful during radio and listening silence. Use them to keep down the amount of radio traffic within platoons.

## DISADVANTAGES

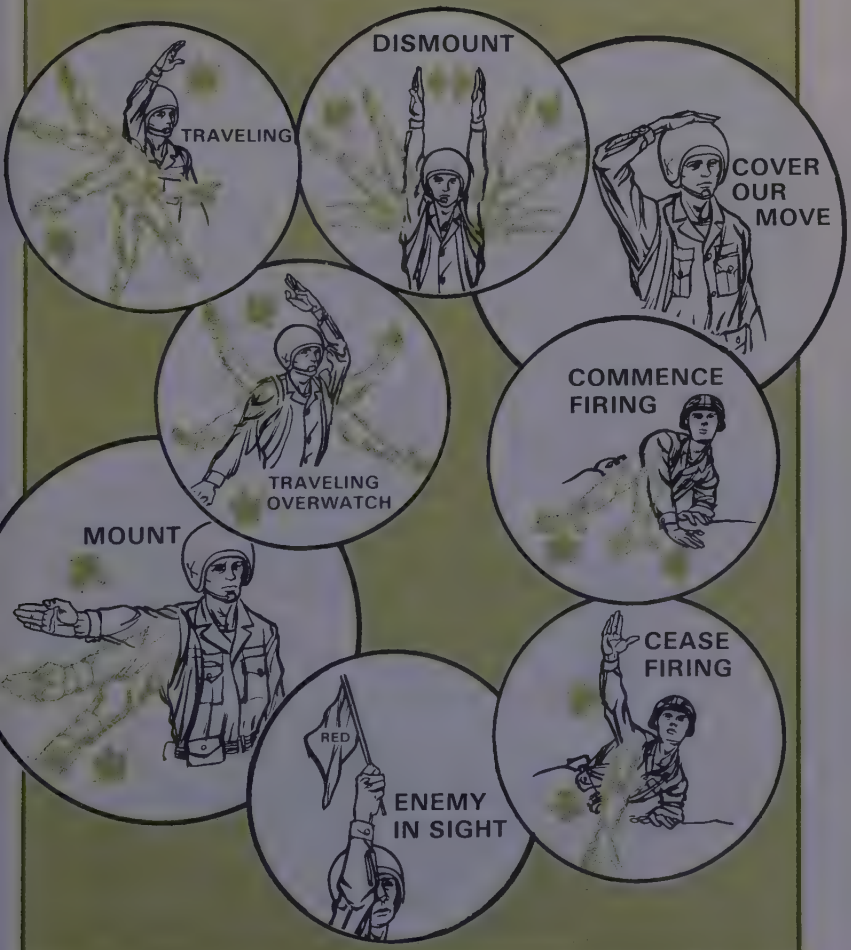
Visual signals are easily misunderstood and open to interception. The enemy may use similar signals to confuse and deceive. Visual signals are restricted when visibility is poor or line-of-sight positions are not available. Sometimes, they are not used because of security.

## ARM-AND-HAND SIGNALS




When an action or movement is to be performed by one or more men of a unit, a preliminary signal is given by pointing toward the person(s) to perform the movement. Unless otherwise indicated, the man giving the signal will face those for whom the signal is intended.

Leaders use standard and special arm-and-hand signals to control small unit actions and for recovery operations and vehicle movements.

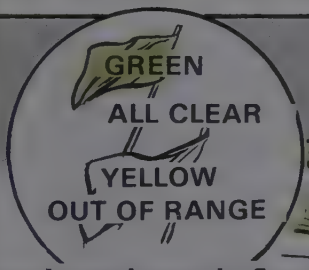


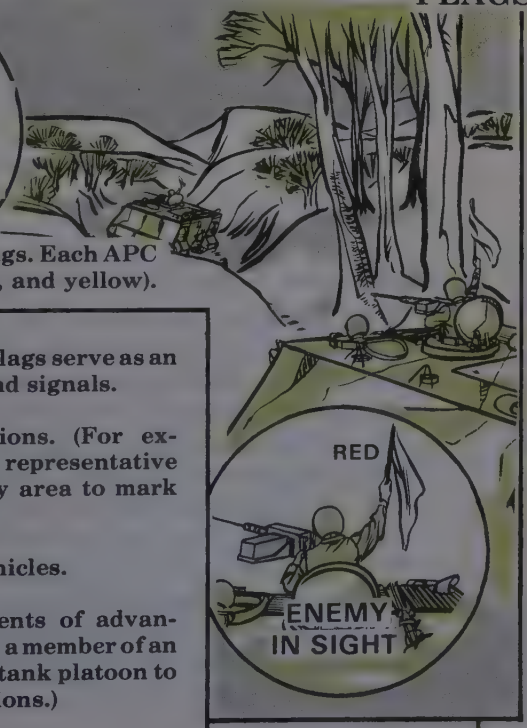
During periods of limited visibility, vehicles can be controlled with flashlights using the following signals:

## OTHER VISUAL SIGNALS

Mirrors, flags, and panels may be used by the squad leader to communicate with his men or other units. Their use is predetermined and their meanings are given to the squad leader by his platoon leader before each operation. The squad leader insures that each of his men understands the meaning of each signal and its use.

### FLAGS




**Signals may be sent by flags. Each APC has three flags (red, green, and yellow). They may be used to ---**

**(1) control movement. Flags serve as an extension of arm-and-hand signals.**

**(2) Mark vehicle positions. (For example, a quartering party representative uses flags in an assembly area to mark vehicle positions.)**

**(3) Identify disabled vehicles.**

**(4) Warn friendly elements of advancing enemy. (For example, a member of an OP uses a flag to signal a tank platoon to move to its fighting positions.)**

## LIGHTS

Use flashlights, headlights, xenon searchlights, and other lights to transmit brief prearranged messages, such as the identity of friendly units. These signals are in the CEOI or fixed by the commander. Make sure that the enemy cannot detect the light source.

## PANELS

Panels are used for communicating with aircraft. They are used to mark helipads, landing areas, drop zones, unit positions, and to identify units as friendly. Panel displays are prescribed in the CEOI.

## PYROTECHNICS

Pyrotechnics are munitions containing chemicals that make a smoke or brilliant light while burning. They are used to signal or light up an area at night and are available in several types and colors. Pyrotechnic signals are prescribed in the CEOI. These signals are generally used for friendly units' identification, fire support control, target or position marking, and for ground-to-air communication. Their advantage is the speed with which information can be transmitted to large numbers of troops and isolated units. Combinations of colors fired at the same time or in series increase the possibility of error since an observer may be unable to distinguish different colors or miss part of the series. Messages

transmitted by pyrotechnics should be confirmed quickly by another means of communication, since the originator does not know that the pyrotechnic signal was seen and understood.

Pyrotechnic signals can be imitated by the enemy. Therefore, they cannot be fully trusted unless the signaler can be identified.

Pyrotechnic signals can be seen by the enemy also. Therefore, do not expose positions or intentions of friendly units. If you use smoke grenades to obscure enemy observation, be sure that the color used does not have a CEOI designated meaning which might cause other supporting troops to interpret the smoke as a signal.

## SOUND COMMUNICATION

Such simple devices as whistles, bugles, horns, sirens, gongs, bells, klaxons, voice amplifiers, and explosive devices are used for communicating. Principal uses of sound signals are to attract attention, transmit prearranged messages, and spread alarms. Sound signals are satisfactory only for short distances; range and reliability are greatly reduced by battle noise. Since they are open to enemy interception, they may be restricted for security reasons. Sound signals must be simple to avoid misunderstandings. The meanings for sound signals are prescribed by the unit SOP and CEOI.

## MESSENGERS

When using messengers, squad leaders must be familiar with the use of written messages. A message is any order, report, or other information to be transmitted by communications means. The text of a message must be clear, concise, and complete. Do not use unnecessary words. When time is critical and the use of messengers is impractical, the transmission of a message via radio or wire is necessary, and the receiver must copy the message exactly as transmitted.

## RADIO

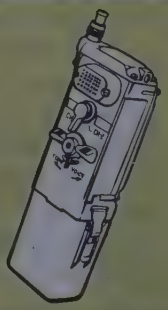
The operating range of radios depends on the type of set, the skill of the operator, weather, terrain, and interference. Power lines and steel structures close to a radio antenna will reduce its operating range. Radio communication is subject to natural interference, interference from other radio stations, and deliberate interference (jamming). Here are some of the radios you will use.

### FM TRANSMITTER (AN/PRT-4)

The Squad Radio-Portable FM TRANSMITTER (AN/PRT-4) is used for communication between the squad leader and his team leaders.

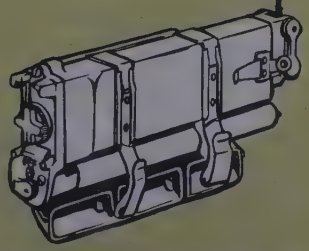
**Planning range:**

**Channel 1: 1600 meters.**
**Channel 2: 500 meters.**
**Battery life: (BA-300): 35 hours.**



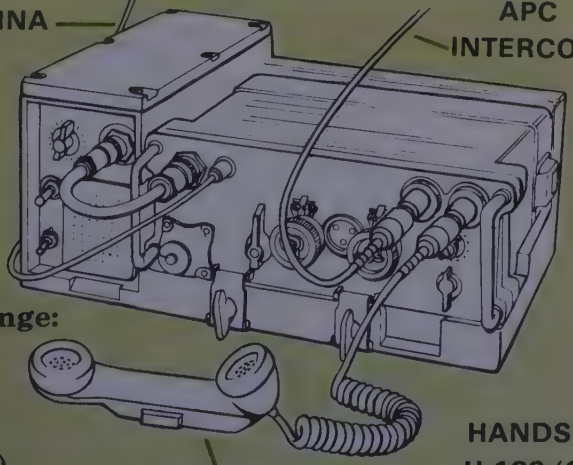
## RECEIVER (AN/PRR-9)

RECEIVER (AN/PRR-9)
Receiver only one channel
Battery life: BA-505: 18 hrs.
BA-4505: 36 hrs.



**This radio has set channels and these are changed by the Battalion Communications Platoon as necessary.**

## RADIO SET AN/GRC-160




**Planning range:**
**12 kms (mounted)**

**8 kms (dismounted)**

**Frequency band: 30-75-5 mhz**

## WIRE COMMUNICATION

The decision to establish wire communication depends on need, time available, and capability to install and maintain a wire net.

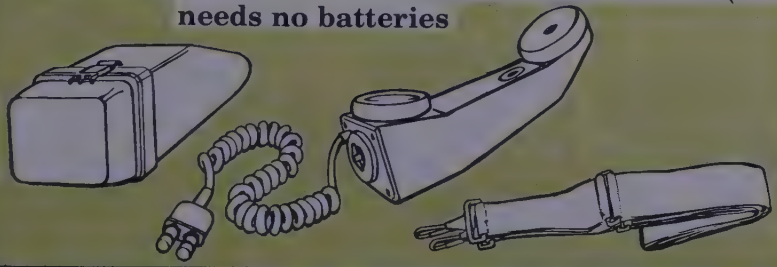
*Its advantages are ---*

- **Wire is more secure than radio.**
- **Wire offers conversation with break-in operation.**

*Its disadvantages are ---*

- **Installation is time consuming.**
- **Wire lines can be broken by traffic or artillery fire.**
- **Wire communication is not practical for mobile operations.**

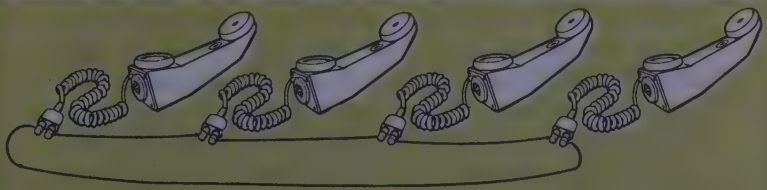
**SOUND-POWERED TELEPHONE (TA-1)**
**needs no batteries**



**The WIRE DISPENSER (MX-306A).**

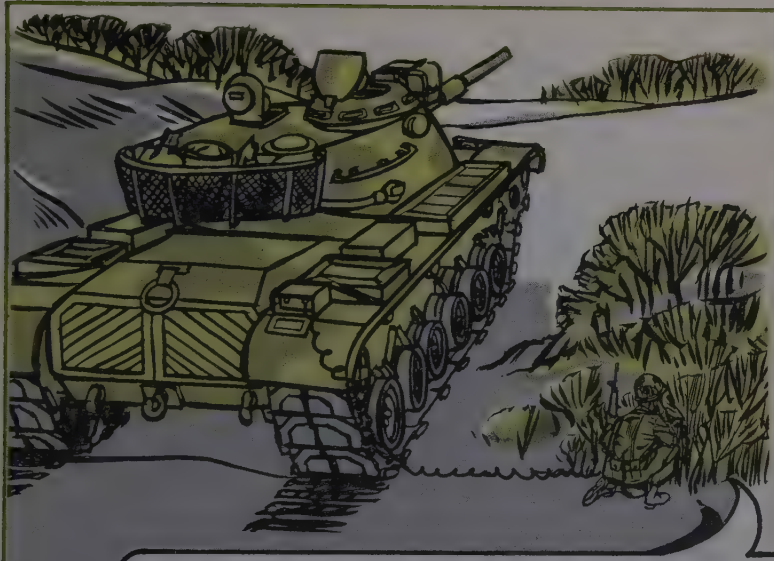
Dough-nut shaped configuration.

Wire length: 800 meters of WD-1/TT
Weight: 26 pounds
Capable of providing continuous communications while laying wire.



**Platoon "Hot Loop" (TA-1/PT-4) and WD- 1/TT.**

The carriers may be interconnected by wire for local communication in static situations or during listening or radio silence. Tanks and APCs may be connected by telephone wire through terminals on the external control box of tanks or through "LINE" binding posts on the audio amplifier in infantry carriers. Wire connection in a complete loop provides communication between all elements even when there is a break in the line. OP/LPs may be included in the net.




The TI telephone is in a box on the right rear of the tank. The phone extension wire is long enough **(40 feet)** to permit a user to take cover on either side of the tank. Messages should be given slowly and distinctly. The phone should be returned to its box when the conversation is ended. The TI phone box also has terminals so that a land line can be hooked up to the tank. Prior to operating with tanks, check the tank that you will be working with to insure that the TI telephone works.

## RULES FOR RADIO AND WIRE COMMUNICATIONS

Listen before transmitting **(sending).**

Make messages short and clear.

Speak clearly, slowly, in natural phrases, and pronounce each word distinctly. If receiving operator must write, allow enough time for writing.

If jammed **(using radio),** try to continue to operate and immediately notify higher headquarters by a different means of communication that you are being jammed. Offset the effects of the jamming by moving the radio set.

In all cases of radio and wire traffic, do not waste time - send the message and get off the net.

## RADIOTELEPHONE PROCEDURES

Certain commonly used prowords have distinct meanings and are used to shorten the amount of time in voice communication and to avoid confusion. The squad leader must be familiar with them and their use.

**Over** -- "This is the end of my transmission to you and a response is necessary. Go ahead, transmit."

**Say again** -- "Say again all of your last transmission."

**Correction** -- "An error has been made in this transmission (or message indicated). The correct version is ---------."

**I say again** -- "I am repeating transmission or portion indicated."

**Roger** -- "I have received your last transmission satisfactorily."

**Wilco** -- "I have received your message, understand it, and will comply."

**Out** -- "This is the end of my transmission to you and no answer is required or expected."

## COMMUNICATION SECURITY

Communication security denies or delays unauthorized persons from gaining information of value from telecommunications. **It includes**

- **Using authentication to insure that the other communicating station is a friendly one.**
- **Using only approved codes.**
- **Designating a period when all radio equipment is turned off.**
- **Restricting the use of radio transmitters. Monitoring radio receivers.**
- **Enforcing net discipline and radiotelephone procedures. All stations operating within a net must use authorized prosigns and prowords, and must limit transmissions to official traffic.**
- **Selecting radio sites with a hill or other shield between it and the enemy.**
- **Using direction antennas when feasible.**

Electronic counter-countermeasures (ECCM) prevent or overcome enemy electronic warfare. ECCM at platoon level consists mainly of the use of proper signal security and antijamming techniques.

## ANTIJAMMING

Radio operators use antijamming procedures to reduce enemy jamming effects. These procedures are

### *RECOGNITION*

The first thing an operator must do when his radio receives interference is to try to find what is causing the interference. He can't immediately assume jamming, because symptoms of jamming are often similar to other types of interference. Removal of the receiver antenna tells you if the interference is being generated internally by the receiver. If interference decreases when the antenna is removed, the interference is jamming.

### *CONTINUED OPERATION*

Normal radio operations should be continued once jamming has been identified so that the enemy can't determine the effect of his jamming. The rule is: During jamming, continue operation unless ordered to shut down.

*REPORTING*

All operators must report jamming to their next higher headquarters by another means of communication; for example, wire or messenger. **A jamming report contains**

- **Date and time of jamming.**
- **Frequencies affected.**
- **Type and strength of jamming signal.**
- **Designation of the unit making the report.**

## The DOs and DON'Ts of COMSEC:

**DO** enforce proper use of authentication systems.

**DO** use only authorized authentication systems.

**DO** assume that your radio transmissions are being intercepted by the enemy.

**DO** use minimum power, minimum transmission times, and proper site selection.

**DON'T** use electrical communications when messengers will serve the purpose. Messengers are the most secure means of communication.

**DON'T** paraphrase or try to talk around the subject. If the man you are talking to can understand, so can the enemy.

# THE M113 ARMORED PERSONNEL CARRIER

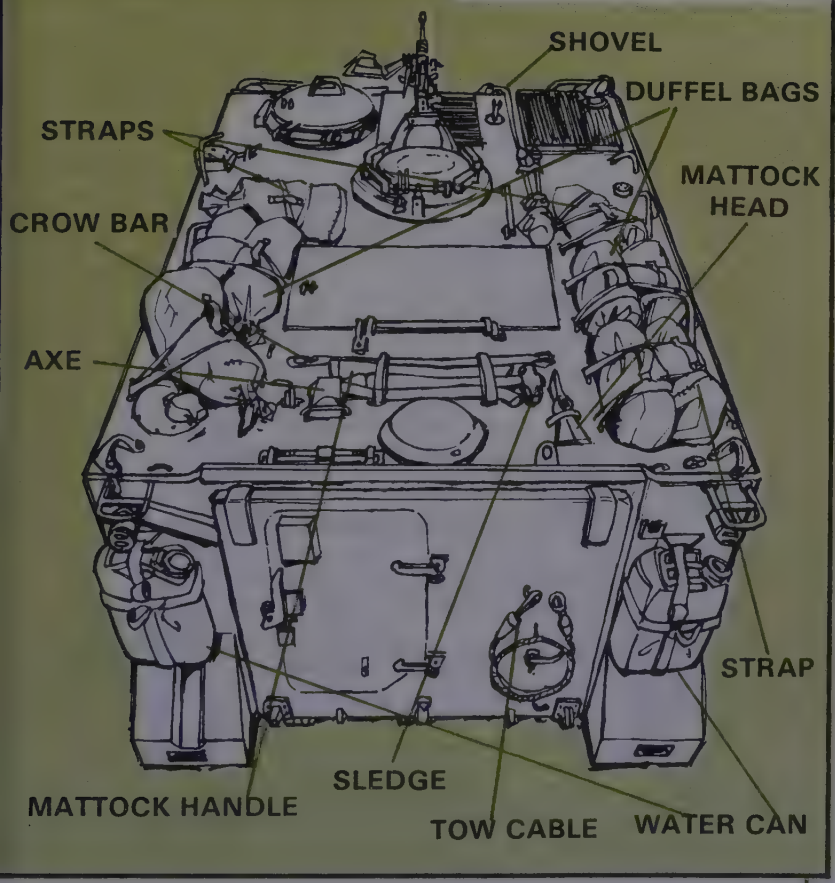
## PART I

## COMBAT LOADING

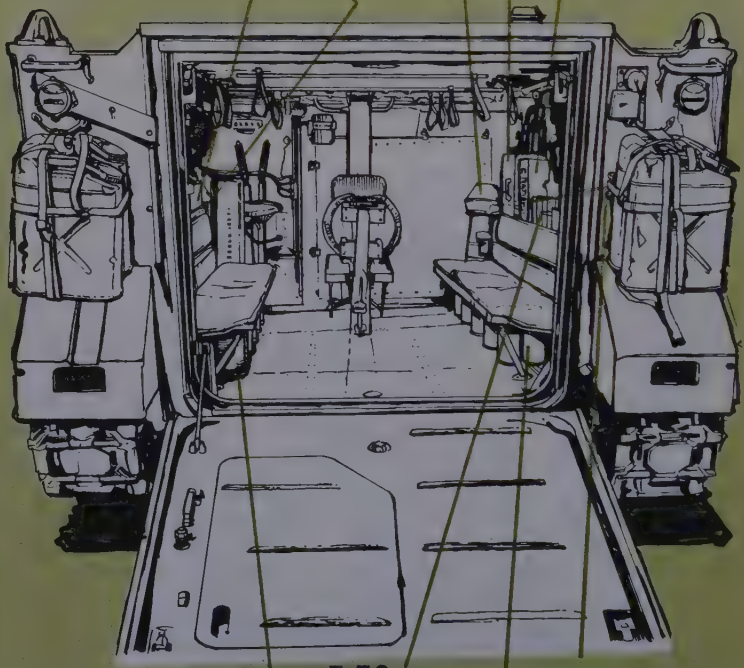
Combat loading is the placing of your squad's ammunition and equipment inside its APC in a logical sequence and location so that high-use items are readily accessible. Items such as sleeping equipment and other low-use items will be placed in the APC first and high-use items such as .50 caliber ammunition will be placed in the APC last. Proper loading is essential to the efficient conduct of combat operations. An SOP is usually established at company or platoon. This procedure makes it easy to locate a desired item rapidly. Since all operations do not take place during daylight hours, every member of the squad must know where all items in the APCs are and locate them at night without light.

The example plan shown on the following pages covers only basic items and should be used only as a guide. Note that the exterior example shows the squad's duffel bags strapped to the carrier. In many situations these items will not be carried by the squad, but will be carried during the day in the company supply vehicle.

## M113 EXTERIOR VIEW



## M113 INTERIOR VIEW



## PART II

### Controlling Movement of the APC

The squad leader can control movement of the carrier by giving orders to the driver over the intercom system.

**Examples of orders:**

**STARTING:**

**"Driver - move out."**

**"Driver - half left - move out."**

**"Driver - follow 1st squad - distance 50 meters - move out."**

**CHANGE OF SPEED:**

**"Driver - faster."**

**"Driver - slower."**

**CHANGE OF DIRECTION:**

**"Driver - left."**

**"Driver - right."**

**(On "left" or "right" the driver turns until the squad leader says "straight ahead.")**

**BACKING UP:**

**"Driver stop - back up." (to back straight to the rear)**

**"Driver stop - back up - right lateral." (to go left)**

**"Driver stop - back up - left lateral." (to go right)**

The word **"driver"** is used each time to alert the driver.

If the intercom isn't working, the squad leader can control the driver with a short stick.

**For example:**

**A slight jab in the back means "move out."**

**Several jabs in the back mean "faster."**

**Light taps on head mean "slower."**

**Hard tap on head means "stop."**

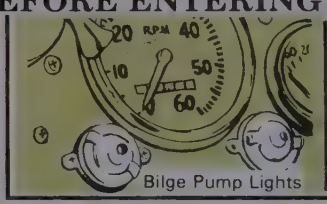
**Taps on left/right shoulder mean "turn left/right."**

When the driver is well trained, you should not have to tell him what to do very often. Unless your APC is the lead vehicle, your driver should follow the example of the platoon leader's APC. If the platoon leader stays 50 meters to the rear of the lead APC, your driver should keep the same distance and speed.

## PART III

## WATER OPERATIONS

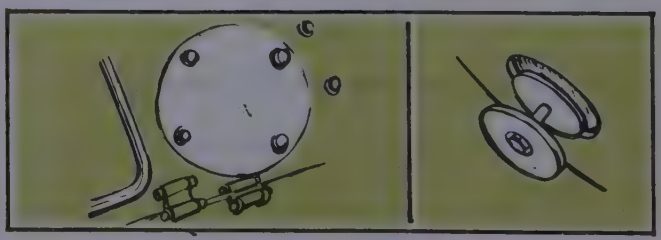
### BEFORE ENTERING THE WATER:




**BILGE PUMPS** - Turn them on. Both lights should come on and any water in the bilge should discharge, or air should come through the outlets. The screens around pumps must be free of debris and clean. Leave pumps on until after you're finished swimming.

**RAMP AND RAMP DOOR** - Lock them and make certain the seals are seated firm and tight. See your -10 for correct procedures of checking seals.

**HULL DRAIN PLUGS AND ACCESS PLATES** - make sure they're all seated flush with hull bottom and not tilted.

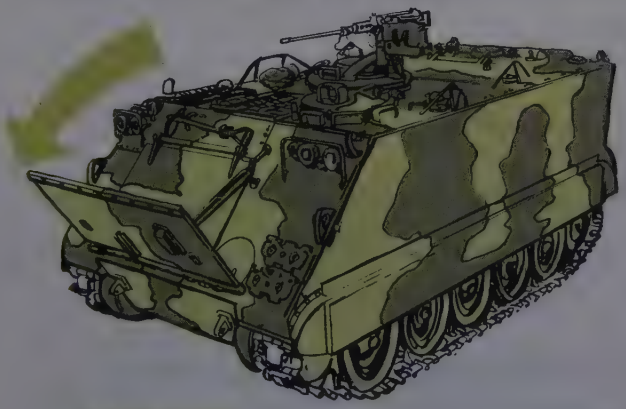


**CARGO TROOPS AND EQUIPMENT** - Distribute your load evenly. Tie down movable items. This helps you maintain a well balanced carrier with a slightly elevated front while afloat. Lopsided distribution of cargo or personnel can swamp the carrier. If the front is lower than the rear, water can wash over the carrier.

**POWER PLANT DOOR** - Lock it down tight. Make certain the seal is fast.

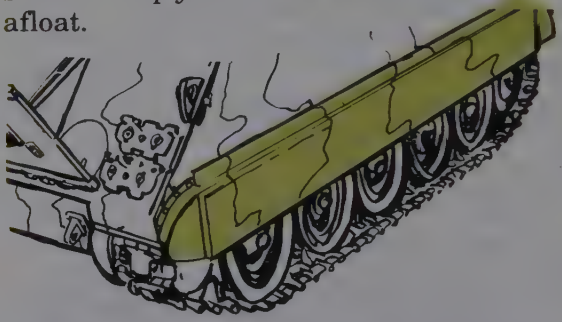
**PERISCOPES** - Install them and make sure they're clean and tight.

**TRIM VANE** - Swing it forward hard and make certain it locks in place. Give it an extra wiggle **and be sure it's locked.**



**HATCHES** - Keep top hatch covers closed **(driver's hatch may stay open).**

**TRACK SHROUDS** - Must be installed properly and be in good condition. These shrouds help you control the carrier when it's afloat.

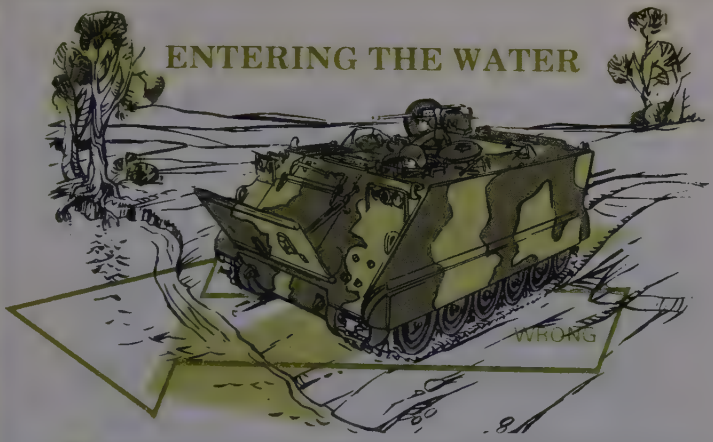


**DOME LIGHTS** - Turn them on -- if you're not on blackout operations.

## SAFETY

- ☑ **Don't fasten seat belts.**
- ☑ **Remove all web gear and packs.**
- ☑ **Specify an order of exit for the men in the carrier.**
- ☑ **Keep a cool head.**
- ☑ **If water rises above floor plates climb to the top deck.**

## ENTERING THE WATER

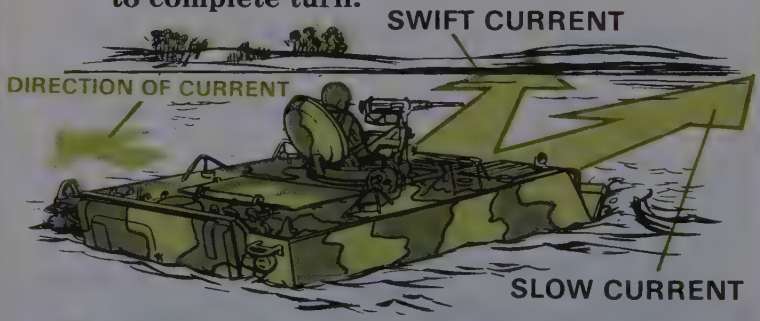



- Select a spot that is firm and free of rocks, stumps, and deep drops. Enter head on; not at an angle.
- Go in with the shift lever in 1 Range and no faster than 10 MPH.

- Be on the ball -- if it looks like you'll be swamped, back off if you can. If not, give it the gun to raise the front and get waterborne.

## DRIVING IN WATER

- When in the water, shift to 1-2 Range. Use this range for all water driving except stopping.
- To steer, use the pivot steer levers -- NOT the differential steer levers.
- Maximum speed in water is 2 - 3 MPH. Speedometer readings are not accurate when afloat. You'll have to guesstimate.
- To keep from overshooting turns, release the pivot steer levers before your turn is complete. Allow momentum of carrier to complete turn.




- To cross a slow-current stream, head straight across and let the current carry you downstream until you reach the other side. If you must exit directly across from the point of entry, head upstream and cross at an angle.

- **Avoid crossing swift current streams, but if you must, head carrier diagonally downstream.**

- **If you hit an underwater obstruction, take it easy. Let up on the gas pedal and pull back on the pivot steer levers to stop the tracks. Then shift to R *(reverse)* and back off. Don't try to go through obstacles; carrier can roll over or get hung up.**

- **Always keep your engine revved up. Drop to low idle only to shift and to brake. Even when in N keep the engine revved to about 1200 RPMs.**

- **Avoid sudden braking or deceleration action as this will pitch the carrier in the direction of travel. A deep forward pitch can swamp the engine compartment.**

- **When swimming, the carrier nose is raised. This keeps the bilge water from reaching the forward pump. Slow down or stop and let the forward bilge pump catch up.**

- **If carrier shows signs of sinking, step on the gas and head for the nearest shore.**

## STOPPING IN WATER

- **Plan and start your stops long before your stopping point is reached. Keep the carrier's momentum in mind and work with it.**

- **Let up on the gas pedal, pull back on the pivot steer lever and stop the tracks.**

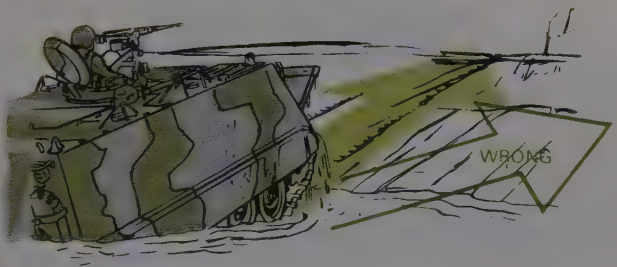
- **When tracks have stopped, release the steer levers and shift in R *(reverse)* and step down on the gas pedal.**

- **Let up on the gas when the carrier's forward motion has stopped.**

## BACKING IN WATER

- **Use R *(reverse)* as the main driving gear. To brake or slow down shift into 1-2 Range after stopping tracks.**

## LEAVING THE WATER




- Look for a clear bank that is free of obstacles, not mushy or muddy. Maneuver your carrier to come in straight-on so both tracks will hit the bank at the same time.
- Ease up on the gas pedal, come in slow and easy and when you hit the bank shift into 1 Range.
- The critical point in getting out of the water is when the tracks first hit the bank. Once either track grabs, steering is tough until both tracks have enough traction for normal steer. Keep using pivot steer until you're clear of the water.
- Climb the bank in 1 Range and try to keep from skidding or spinning the tracks.

# CHECK

Look over the trim vane for damage and clear out any debris. Turn off the bilge pumps when the bilge is all pumped out.

Although the carrier unit housings are sealed by welding, some water will get through. So the first chance you get . . . **especially if you've been in salt water do this . . .**

## DRAIN AND FLUSH OUT HULL

**FRONT** -- Remove two front hull and final drive drain plugs. Slope the carrier front down and to the right side. Open the power plant door and wash down all the components. But take it easy. Never use a high pressure water hose. Never saturate electrical components. Wash off all unpainted areas. Then slope the carrier to the left and flush out the final drive and hull plates. After all the water is out, put the plugs back.

**REAR** -- Elevate the front of the carrier. Remove the rear hull drain plugs. Lower the ramp, remove three floor plates and wash out the hull. When clean and drained, put the drain plugs and floor plates back in.

## OIL AND HYDRAULIC FLUID

Check the oil in the engine, transmission, final drives, differential, transfer case and ramp hydraulic tank. If you see any evidence that water entered, drain and flush the component that's water contaminated. Clean or replace the component's filter before refilling.

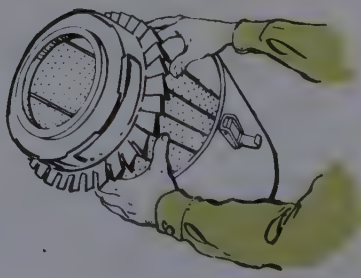
## SUSPENSION

Check all support arm bearings, road wheel hubs and idler wheel hubs for evidence of water. If any looks milky, it's water-contaminated. Drain and flush and refill with fresh oil. On hubs that take grease, shoot in fresh GAA until clean grease comes out the relief valve.

## ELECTRICAL CONNECTIONS AND RECEPTACLES

If water-contaminated, wash off with fresh water and dry with an air hose.

## FUEL SYSTEM AND AIR CLEANER



Remove the air cleaner housing. If you find any evidence of water, clean and dry the cleaner element. Drain fuel filters. If any water shows, clean all fuel filters.

## CONDENSATION

The sudden cooling of warm interior parts or housings may cause sweating. If possible expose the carrier to warm air to dry up the condensation.

## ALUMINUM AND MAGNESIUM PARTS

When exposed to salt water for extended periods of time their life may be shortened, so keep an eye on them. Have them replaced when they show signs of failure.

## PERISCOPES

If moisture has entered, turn them over to your maintenance people for repair promptly.

## PART IV

### Actions When the Carrier is Disabled

A carrier is considered disabled when it can no longer move under its own power. You must know what to do if your carrier becomes disabled on the battlefield. Most platoons will have SOPs that tell you what actions to take. These SOPs are normally based on the following guidelines:

- If you are moving forward (attack or movement to contact) and are not in immediate danger from the enemy, attempt to identify the problem. If you think you can fix it in a short period of time, put out local security and repair it. If you don't feel that you can fix it, leave the TL/gunner and the driver and crossload your men and equipment onto other APCs of the platoon. The platoon leader will report the location of your APC to the company maintenance section. After the carrier is repaired, it will rejoin you.

- If the platoon is attacking and your carrier becomes disabled, dismount the entire squad if the APC stopped in an exposed position. Leave the driver and TL/gunner in the vicinity of the vehicle so that they can secure it and continue with the mission. If the carrier stopped in a covered position, the carrier team can remain mounted and use the .50 cal MG to support your attack.

- If the carrier is disabled when the platoon is moving away from the enemy but you are not in immediate danger from the enemy, dismount local security and attempt to solve the problem. If you cannot fix it rapidly, the platoon leader may tell you to either render the vehicle unserviceable, to destroy it, or to hook up to another APC and be towed.

- If the carrier is disabled when the platoon is moving away from the enemy, and the enemy is close behind or firing at you, the platoon leader will probably tell you to crossload your men and equipment and destroy the carrier.

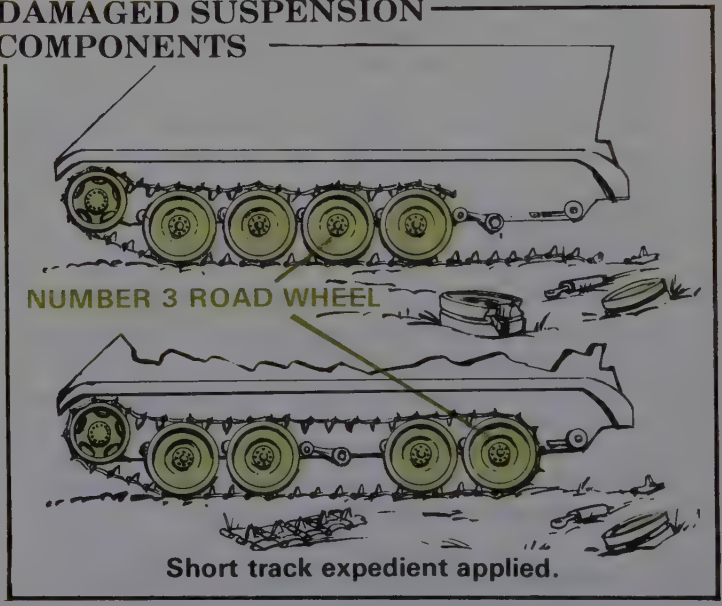
If you are told to render the carrier unserviceable, secure your weapons, radios, and equipment and take the following actions:

- ☑ **Remove the fuel line from the fuel filter to the engine block.**
- ☑ **Remove the shaft between the transmission and differential.**
- ☑ **Break a track and remove at least two shoes.**

If you are told to destroy the carrier, secure your weapons and equipment and destroy the carrier as prescribed in chapter 5 of the operator's manual of the vehicle.

# RECOVERY TECHNIQUES

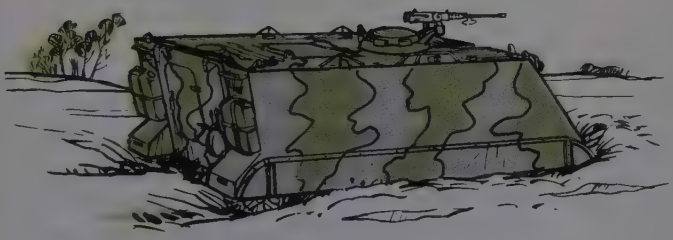
## DAMAGED SUSPENSION COMPONENTS




Short track expedient applied.

An APC with a damaged track, rear road wheel arm, and idler wheel can be operated by using the short track expedient. Companion components of the damaged suspension parts, such as the rear shock absorber, track adjuster, road wheel arm, and torsion bar, must be removed. To give the APC better stability, the number three road wheel with arm is moved to the rear road wheel position. As the idler wheel is absent, remove sufficient track blocks to permit the tracks to be connected. Avoid high speeds when operating short track APCs.

**ADDITIONALLY . . .** Your M113A1 may get bogged down. Recovery know-how will get you moving again. A wise driver will keep a copy of **FM 20-22 (Vehicle Recovery Operation)** in his publications bag.



**SO . . .** Keep yourself posted on M113A1 recovery tactics -- especially these points:

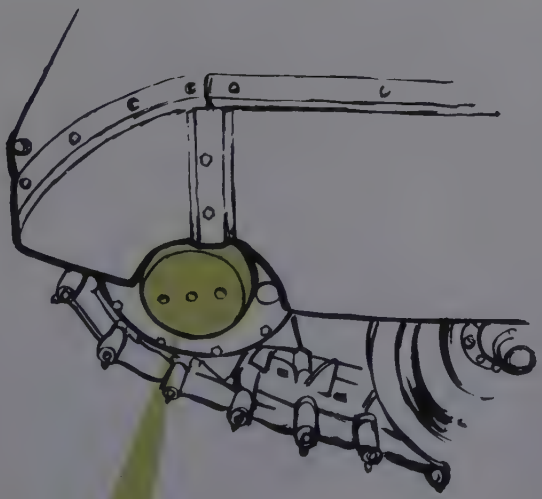
- ☑ **Turn engine off and set the brakes before you attach rigging to your APC or to a pulling vehicle.**
- ☑ **Double-check all rigging *(hook-ups, cables, ropes, shackles, anchors, hooks, couplings, etc.)* before you start pulling.**

- ☑ **Keep onlookers and guides out of the danger area while the rigging lines are under tension. Minimum safe distance is the length of the longest line.**
- ☑ **Close the driver's hatch during recovery or while being towed by cable.**
- ☑ **Scrape up, sweep up, or cover up *(with sand, dirt, gravel, etc.)* fuel oil and other spilled flammables.**
- ☑ **Keep smokers, open flame, and vehicle exhaust away from an overturned vehicle.**

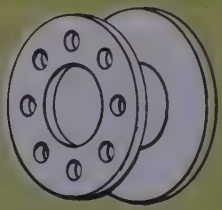
# TO HELP YOU

## CAPSTAN KIT

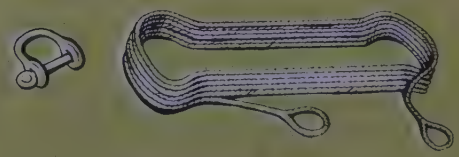
If your APC has a capstan kit **NSN 2540-933-3570,** it will ease your APC over steep or slippery banks and through boggy areas. If you don't have one, it can be ordered by your supply sergeant using the National Stock Number (**NSN**) shown above.



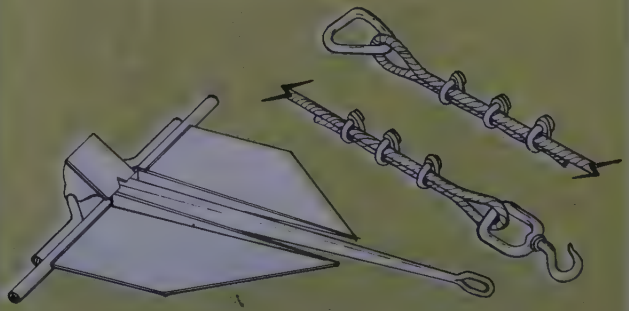
**The kit has two adapters *(permanently bolted to the hub of each drive sprocket).* Use only bolts that go with the kit.**



**Two capstan drums which you bolt on each adapter *(with a T-bolt)* when the kit is needed.**

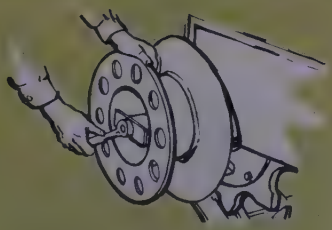


**Four 100-foot and two 50-foot lengths of 1-inch nylon rope *(with shackles).***



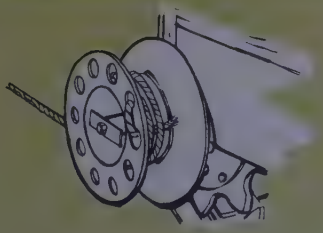
**Two marine anchors *(with recovery cables).***

## TO USE THE KIT



**Bolt the drums to the adapters.**

***Before you install the drums make sure your vehicle's steering levers are in locked position.***



**Thread a length of rope through the outside flange of each drum. Make two or three turns over the end of the rope to anchor it. Be sure the rope extends from under the drums.**

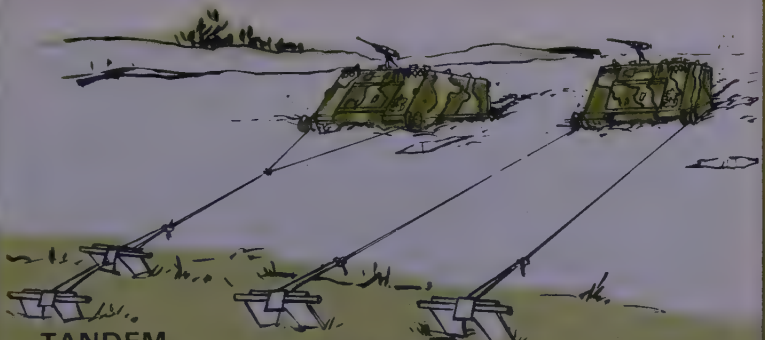
Set the marine anchors in line with the drums. Press them into the ground to give them a good start.

Eliminate all rope slack before you attach the ropes to the anchors.

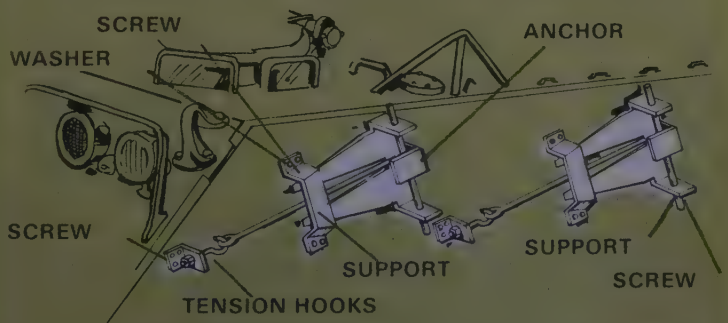
Apply vehicle power slowly until the tracks are turning equally. Keep a slow, steady, equal pull so the anchors will dig themselves in evenly.

As the drums winch in the ropes your APC will move out.

Use a guide to make sure the rope winds in OK.




You can use the anchors side-by-side or in tandem. But they may go completely underground **(several feet)** so be sure to attach their recovery cables before you start pulling. To recover the anchors pull the recovery cables with your APC.



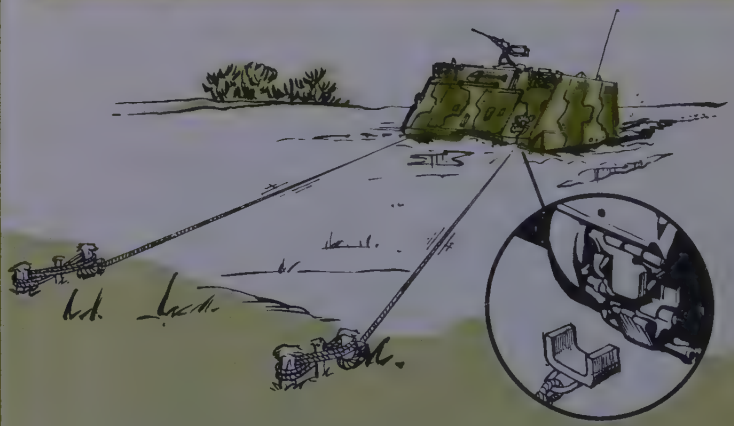

The kit is stored on the top right rear of your APC -- except for the anchors. They go on the left side of your carrier.

**See TM 9-2300-257-10 (December 1973) for more on the capstan kit.**

## APCAT KIT

The APCAT (**APC Anchoring Tracks**) kit is another handy self-recovery aid. It is locally fabricated and consists of two track anchor blocks and two 100-foot lengths of rope.

***Your unit's maintenance shop can work it up for you.***

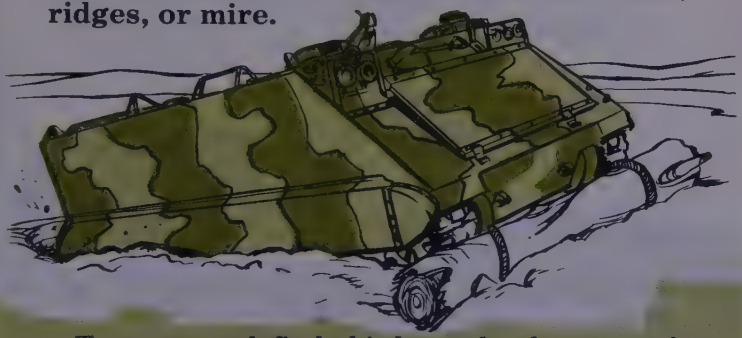


Attach an anchor block on each track and tie the rope to the loops on the blocks and then to a good anchor.

As you apply vehicle power, the tracks anchor themselves to the blocks, and the APCAT will move you out the length of your track. You can untie the blocks and retie them to the ropes with a half-hitch.

## OTHER WAYS

**Carriers often get hung up on stumps, rocks, ridges, or mire.**



To get unstuck find a big heavy log, long enough to span the width of the carrier. Anchor it to both tracks at the front with a tow cable. Attach the cable in such a way it won't hang up under the hull when the log travels rearward under the track. Also put the hook on the outside so it can be easily disconnected.

*Take it easy* -- and be careful to stop before the log reaches the rear fenders.

If your belly hang-up is other than mire, you can do the same with two tow cables or chains. Connect the cables **(or chains)** together with a tow hook and attach them to both tracks by passing the ends through the tracks from the outside. When you move forward, the cable will move under the tracks, contact the obstacle, anchor the tracks, and move the carrier off the hang-up.

REMEMBER -- **Stop before the chain or cable gets to the rear fenders.**

One or two APCs can also rescue your vehicle out of some sticky spots.

Use crossed cables between the vehicles. That keeps the cables out of the tracks and keeps the vehicles lined up.

One cable between two towing vehicles is okay, but a two-cable hookup will keep the towing vehicles lined up better, and it will help to equalize the pull.

In some muddy bogs you can use brush, logs, and other natural growth to make a roadbed to help your APC crawl through.

## CAN'T DO?

If you can't get unstuck, over or around obstacles, call for the recovery experts and their special recovery equipment, or dig into your copy of **FM 20-22** for the exact information on your recovery problem.

# PREPARATION OF FIGHTING POSITIONS

There are two basic requirements for a fighting position:

- **It must provide you with protection.**
- **It must allow you to engage the enemy.**

Both of these requirements must be considered when you decide to prepare positions. For example, protection is of little value if you cannot place fires on the enemy. So select locations for fighting positions that will permit your men to effectively destroy the enemy while being protected from enemy fire.

## PROVIDING PROTECTION FROM ENEMY FIRE

Fighting positions must provide protection from both **direct** and **indirect** fires.

Protection from direct fires is provided by frontal cover. This cover should be sufficient to stop enemy small-arms fire **(at least 18 inches of dirt),** and be high enough to cover the individual's head. Protection from larger enemy weapons **(e.g., tank gun fire)** is gained primarily from hiding the position so the enemy can't pinpoint it and place accurate cannon fire directly on the position.

## POSITIONS SHOULD BE INVISIBLE FROM THE FRONT

NOT THIS . . .

The enemy could see and destroy this position with heavy caliber direct fire

. . . THIS

but could not pinpoint this position.

Protection from indirect fire is gained by **getting men below ground level.** Men below ground level are at least 10 times more protected from most indirect fires than men above ground level.

THIS . . .

. . . NOT THIS

Another aspect of gaining protection is to make the position as small as possible. The smaller the position, the less likely are enemy rounds and fragments to get into it. A BIG position is a BAD position.

As you choose positions, try to use natural protection against enemy fires.

## USE NATURAL PROTECTION WHEN POSSIBLE

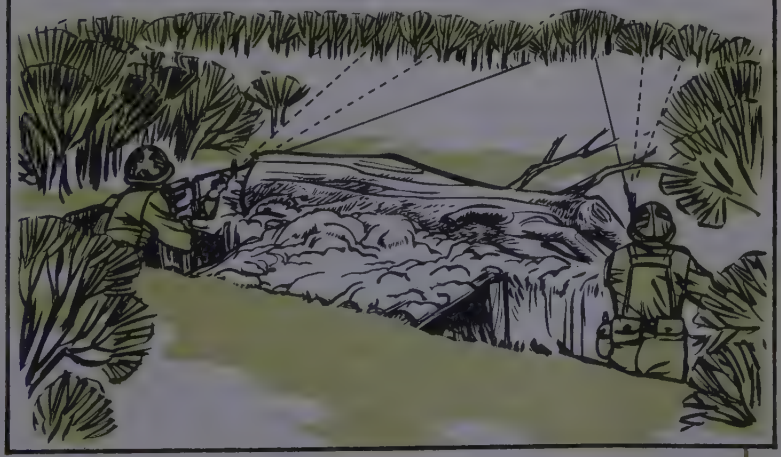
Trees, rocks, logs, rubble, manmade objects, and folds in the ground protect you while you shoot at the enemy. Their main advantage is that, being natural objects, they are hard for the enemy to identify as fighting positions.

Whether you use natural protection or artificial protection that you must prepare yourself, remember that a good fighting position must be completely invisible to the enemy.

## ALLOWING ENGAGEMENT

**A fighting position should**

- **Allow you to see and fire to the front when not receiving effective direct fire.**



- **Provide frontal protection so that when receiving effective direct fire you can move behind the protection and fire to the oblique.**

If possible, the frontal protection should also hide the muzzle blast of the weapon when firing to the oblique.

## HASTY FIGHTING POSITIONS

When you first move into a battle position, you may have very little or no time to prepare the positions from which you must fire. If that is the situation, have your men occupy **hasty fighting positions.** A hasty fighting position is behind some natural object on the terrain that affords you frontal protection from direct fire but also allows you to fire forward. To provide protection from indirect fires, hasty fighting positions should put soldiers in a small depression or hole to get them as far below ground level as possible.

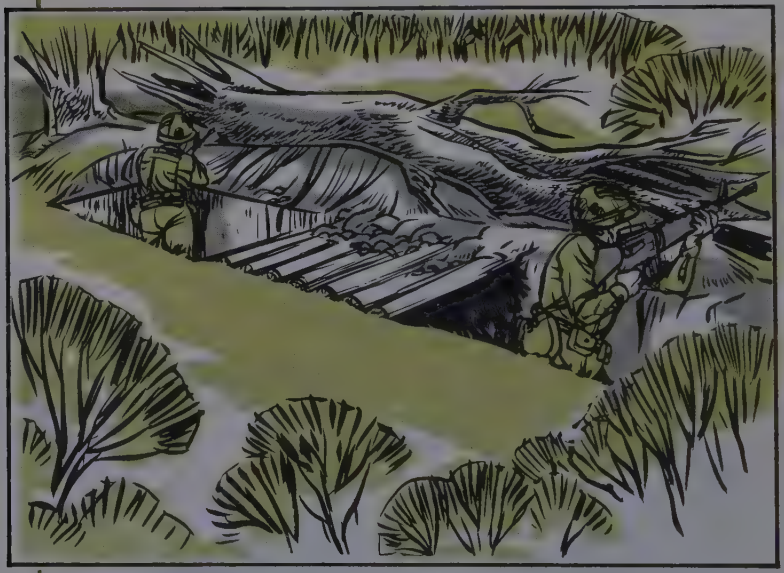
## NO PREPARATION TIME

## LITTLE PREPARATION TIME

Note that the term **hasty position** does not mean that you can't dig. Even if you only have a few minutes, you can dig or scrape out a prone shelter that will give you increased protection.

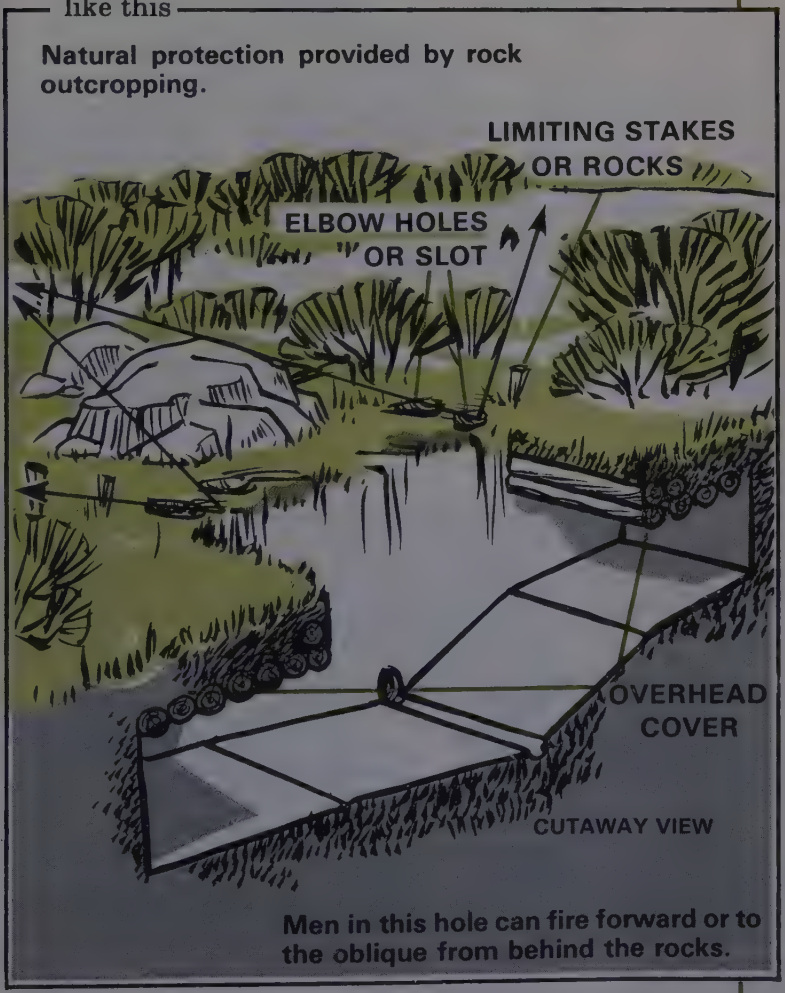
## IMPROVED FIGHTING POSITIONS

As time and conditions permit, positions can be improved, but the natural cover that was initially used in the hasty positions will still be the basis for the fighting positions.

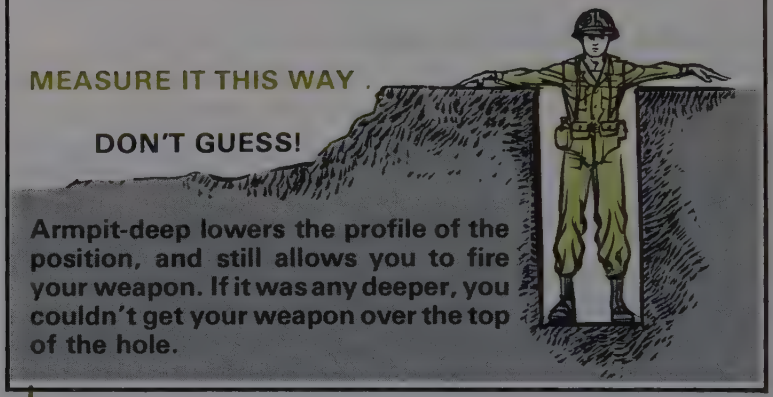


The basic improved fighting position is a two-man hole. It should be as small as possible to provide the greatest amount of protection against the fragmentation effects of explosive projectiles and to make it easy to camouflage. However, it must be large enough for two men, their weapons, equipment, and ammunition.

A well-constructed two-man position might look like this

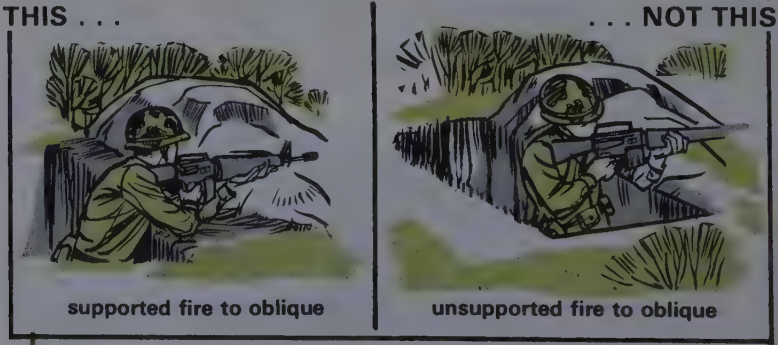

Natural protection provided by rock outcropping.
LIMITING STAKES OR ROCKS
ELBOW HOLES OR SLOT
OVERHEAD COVER
CUTAWAY VIEW
Men in this hole can fire forward or to the oblique from behind the rocks.

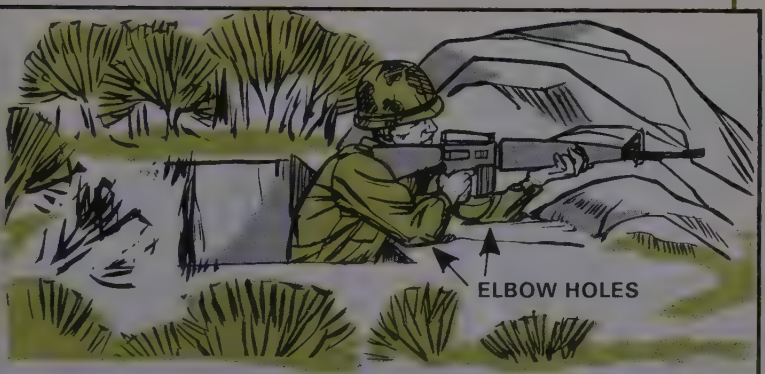
## THIS HOLE WAS DUG ARMPIT-DEEP


MEASURE IT THIS WAY
DON'T GUESS!
Armpit-deep lowers the profile of the position, and still allows you to fire your weapon. If it was any deeper, you couldn't get your weapon over the top of the hole.

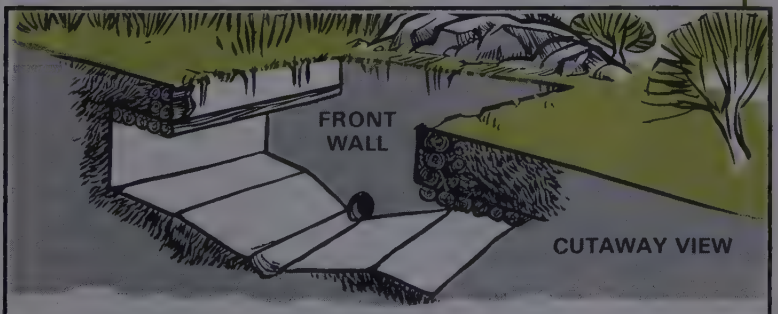
## PROVIDE SUPPORT FOR FIRER

The distance between the hole and the frontal protection should be wide enough to allow the soldier to fire from a supported position **(one with elbows on the ground).**

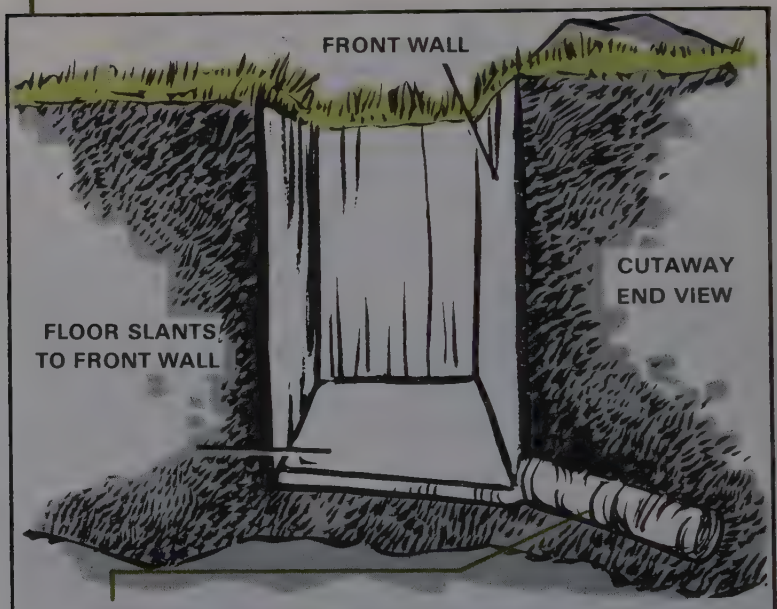





**Dig ELBOW HOLES to stabilize your arms and lower your silhouette.**



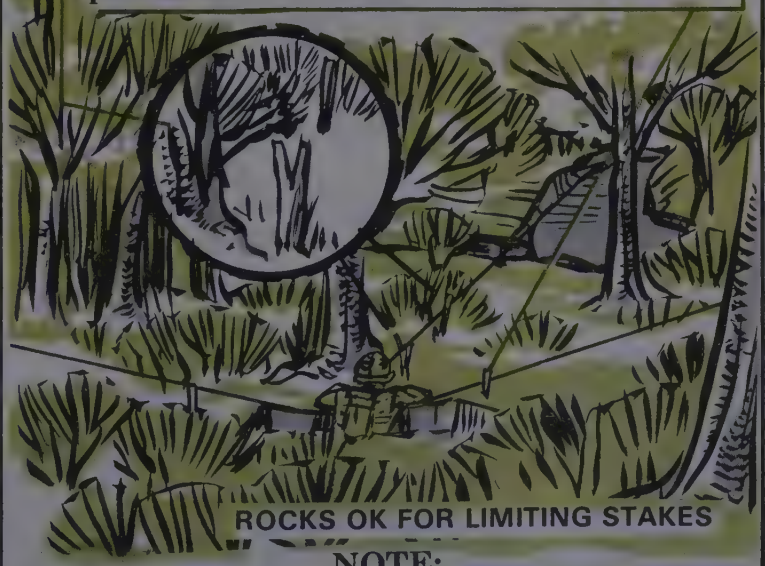

***WATER DRAINAGE.*** **This is provided by sloping the floor of your hole toward the center. A shallow trench scooped out of the floor will further direct water toward the front wall.**




*GRENADE SUMP.* **At the bottom of the wall toward which water will drain, use your intrenching tool to dig a hole downward at an angle of about 45 degrees, as wide as the shovel blade and as deep as you can dig. This sump is for hand grenades thrown into your position. The slant of the floor should channel such grenades into the sump and its mouth should be smooth and wide enough to be an easy target for kicking grenades there, too.**

Place *AIMING STAKES* toward especially dangerous approaches so you can lay your weapon on these approaches even at night.

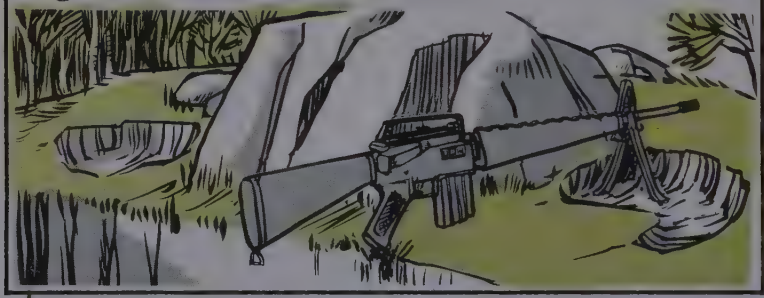
Place *LIMITING STAKES,* right and left, to define your sector of fire; they will also prevent accidental firing into adjacent positions.




NOTE:

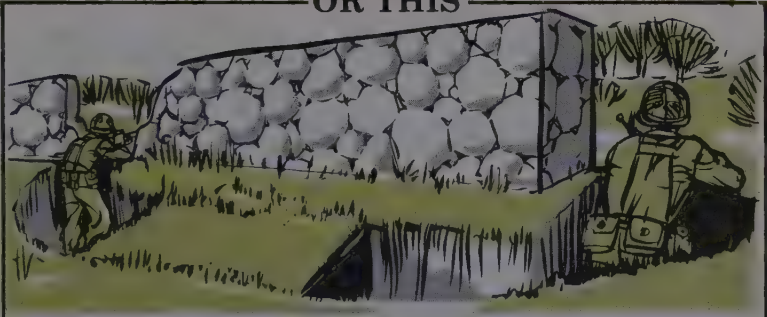
Care must be taken not to destroy the concealment of the position with limiting stakes.

*Dig trenches for the bipod legs* of automatic rifles to get the weapon as close to ground level as possible.



*Shape the hole to fit the natural cover available.* Depending on the size and shape of the frontal cover that you are using, you may not be able to dig a rectangular hole. It may look like this --

OR THIS



**REMEMBER -- BUILD YOUR POSITION SO THAT YOU CAN FIRE TO THE FRONT WHEN NOT RECEIVING EFFECTIVE DIRECT FIRE AND CAN GET BEHIND YOUR FRONTAL PROTECTION AND FIRE TO THE OBLIQUE WHEN YOU ARE.**

While improving the fighting position, **take care not to disturb the natural cover and concealment.** Spoil can be used to prepare parapets on the sides or rear of the hole or disposed of behind the positions. If you use it, you must camouflage it. Foremost in your mind should be this thought --

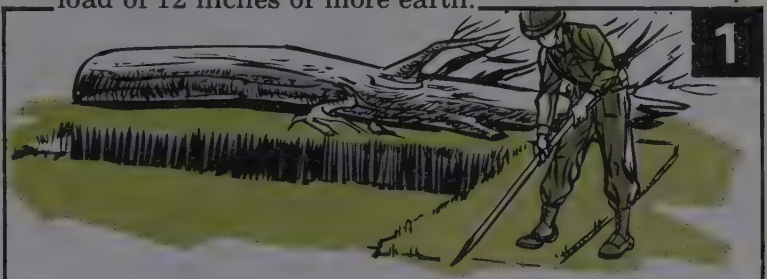
**A PROPERLY SELECTED AND PREPARED FIGHTING POSITION IS NOT VISIBLE TO THE ENEMY AT ANY TIME -- NO MATTER HOW CLOSE HE GETS.**

Therefore, your positions must be well camouflaged. Try to use camouflage material that doesn't have to be replaced. Live bushes, rocks, and logs don't change color or wilt like vegetation that you must cut. But don't use so much that your position looks different from the terrain around you.

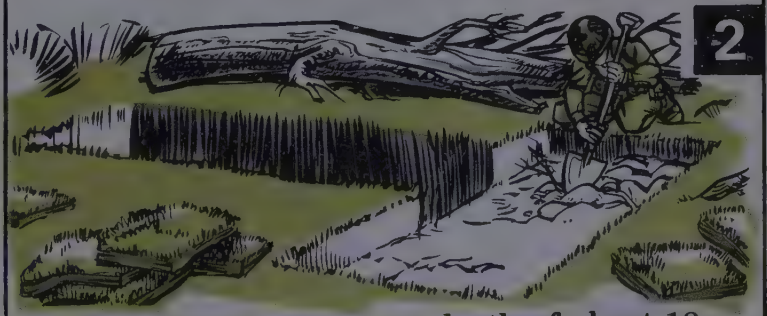
## CONSTRUCTING OVERHEAD COVER

Overhead cover can be obtained by digging into the wall of the hole **(if the ground is firm)** or laying supports across the hole and covering them with a layer of dirt or sod. If you choose to use supports, remember that your position must be invisible to the enemy -- don't build up the overhead cover so much that it can't be easily concealed.

Improvised cover support can be made from logs, planks, posts, broken sign boards, empty ammo boxes, debris from demolished buildings or anything rigid and strong enough to support a load of 12 inches or more earth.

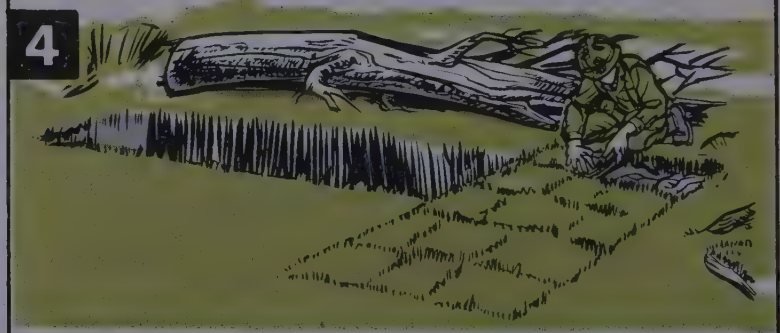



**One way to build overhead cover with expedient material is to mark off an area at the side of your hole. Make it wider than the hole -- wide enough to hold logs or planks which will support the cover *(about 12 inches).***




**Dig this area out to a depth of about 18 inches, saving the sod for camouflage.**

**Next put supporting logs, planks, or whatever is available across the area to support the rest of the overhead cover material.**




**Fill up the hole, piling dirt on top of the log cover and camouflaging it with sod. Make it look natural.**

5

**Then get in your hole and dig out a cave-like compartment under the cover.**

**Use the excavated dirt to add to and strengthen your parapet or your overhead cover. Excess dirt should be carefully carried away and hidden.**

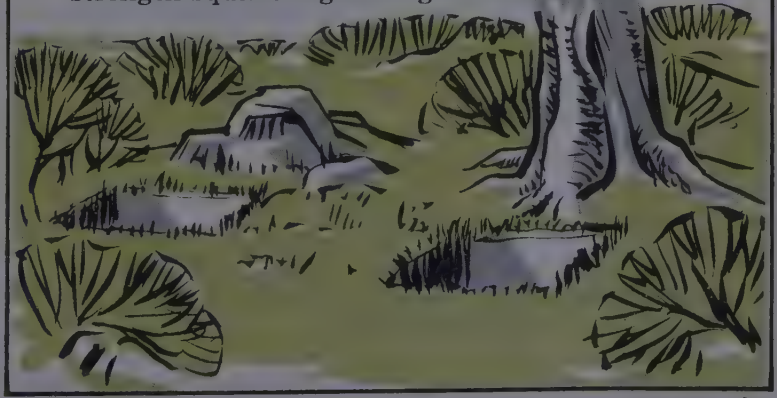
# OTHER WAYS TO BUILD OVERHEAD COVER

## VARIATIONS OF THE BASIC FIGHTING POSITION

When the cover and concealment or terrain configuration does not favor a standard two-man fighting position, either the **"separated two-man" or the "one-man" fighting position** may be used. They may allow you to make better use of existing natural cover and concealment and may also provide more flexibility for covering a defensive sector.

### SEPARATED TWO-MAN FIGHTING POSITIONS

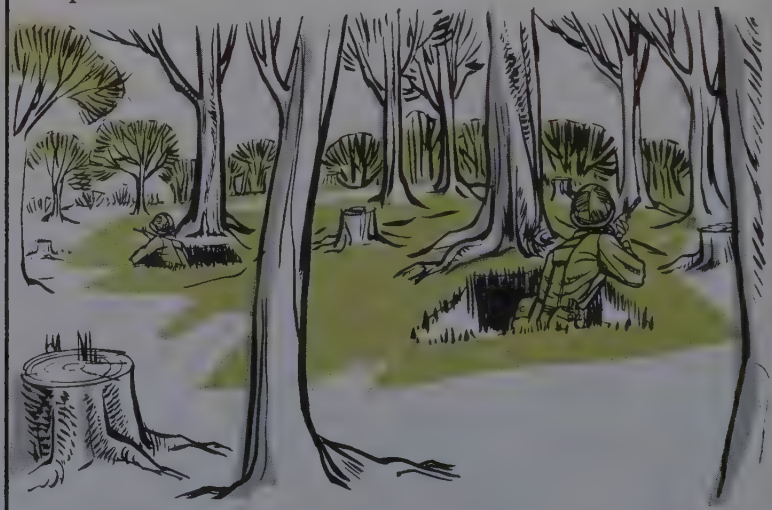
The separated two-man hole allows the automatic riflemen or grenadiers to fire in either direction without having to switch positions with the other man in the hole and also permits all personnel to mass their fires toward one flank. This is an important consideration for understrength squads organizing a defense.



## ONE-MAN FIGHTING POSITION

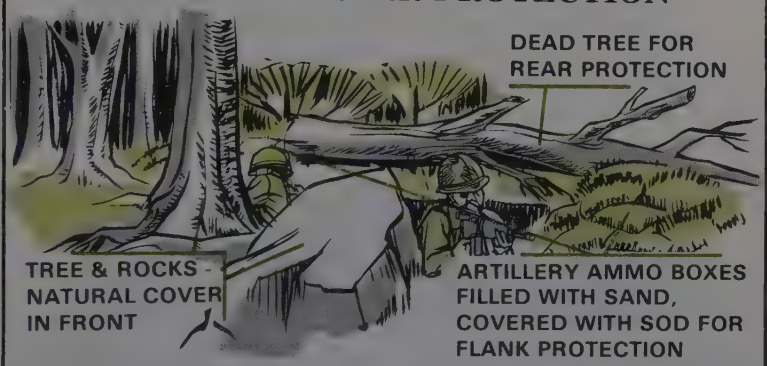
The one-man fighting position provides more flexibility in the use of natural cover and concealment and coverage of the defensive sector.

The same tasks must be accomplished for each of the one-man positions as for the basic two-man position.



One-man positions can also be used when you want a weapon to fire in only one direction or when the frontal cover doesn't allow you to fire from both sides of the position.

## FLANK AND REAR PROTECTION


DEAD TREE FOR REAR PROTECTION
TREE & ROCKS - NATURAL COVER IN FRONT
ARTILLERY AMMO BOXES FILLED WITH SAND, COVERED WITH SOD FOR FLANK PROTECTION

To insure complete protection for fighting positions, flank and rear cover is necessary. It protects against the effects of indirect fires that burst to the flanks/rear of the positions and against the effects of friendly supporting weapons located to the rear; e.g., discarding sabot rounds fired from tanks or small arms.

Ideally, this protection is provided by natural cover. In its absence, artificial cover must be constructed as time and circumstances permit.

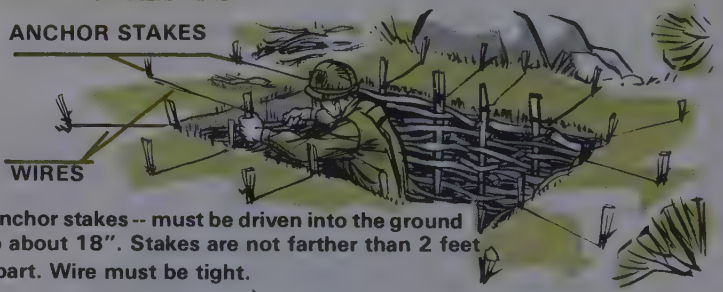
**WHEN CONSTRUCTED, ALL ARTIFICIAL COVER MUST BLEND IN WITH THE SURROUNDING TERRAIN SO IT CANNOT BE DETECTED BY THE ENEMY!**

## CONCEALMENT FROM AIRCRAFT

Not only must you make your position invisible to enemy infantry and armor, it must be invisible to enemy aircraft. If your position is under a bush, a tree, or in a building, you are less likely to be spotted from above.

By putting leaves or grass on the floor of your hole, you will reduce the contrast that the fresh earth has with the ground around your position.

## REVETMENTS

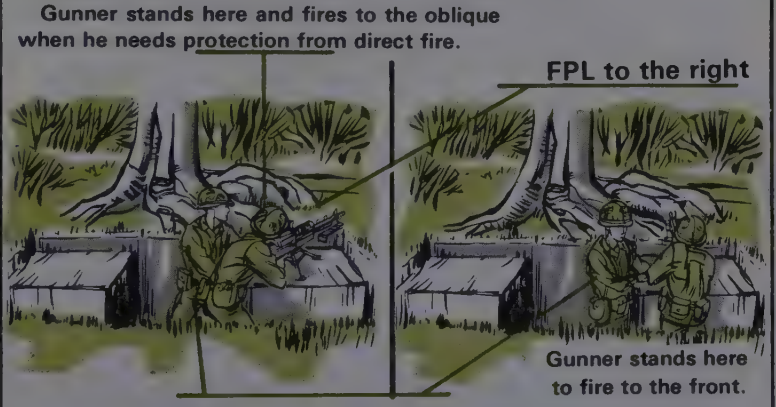



**Anchor stakes -- must be driven into the ground to about 18". Stakes are not farther than 2 feet apart. Wire must be tight.**

Revetments are supports put along the sides of a fighting position to prevent the sides from collapsing. Use of revetments is particularly important when fighting positions are con-

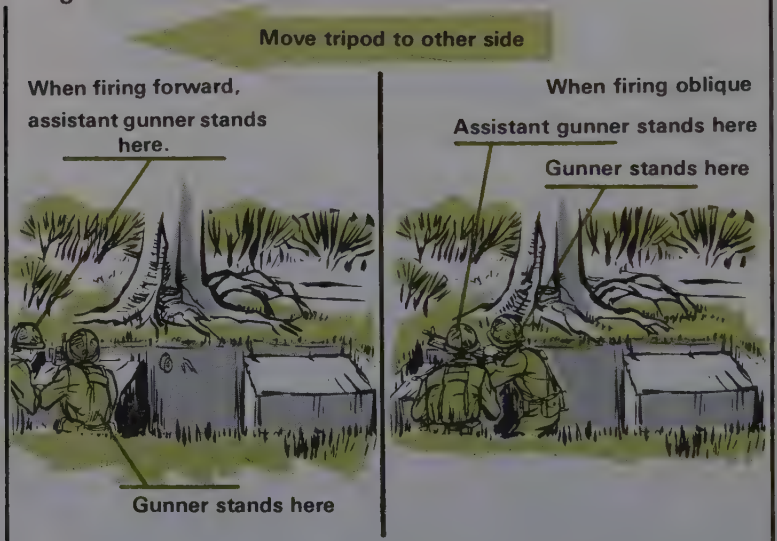
structed in loose soil or during wet weather. Anything that will hold the walls (**wire, boards, logs, etc.**) can be used as revetment material as long as it is staked and anchored.

## MACHINEGUN POSITIONS


Gunner stands here and fires to the oblique when he needs protection from direct fire.
FPL to the right
Gunner stands here to fire to the front.
Assistant gunner feeds ammunition from here and is always protected from direct fire.

A fighting position for a machinegun is also constructed so that the gun can fire both to the front and to the oblique. However, it takes two men to keep the gun firing. This means that the hole must be shaped so that both men (**gunner and assistant gunner**) can get to the gun and the gun can fire to either side of the frontal protection.

Firing to the other side



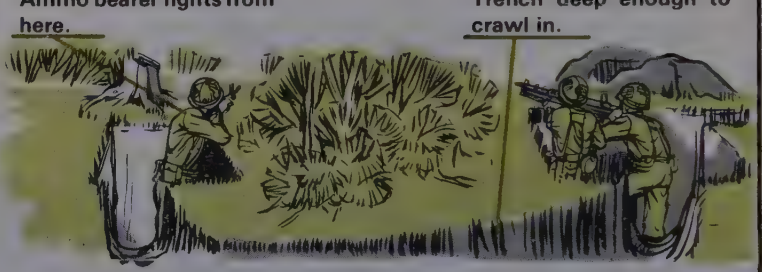

## How to Prepare a Machinegun Position.

The platoon leader will tell you exactly where to put the gun, give you a sector of fire, and assign you a final protective line (FPL) or a principal direction of fire (PDF). Position the tripod so that the gun can be laid on the FPL or PDF and the crew is behind the frontal protection. When the tripod is in place so that you can fire the FPL, move the gun to the other side of the position. You can then decide exactly how you must dig the hole.

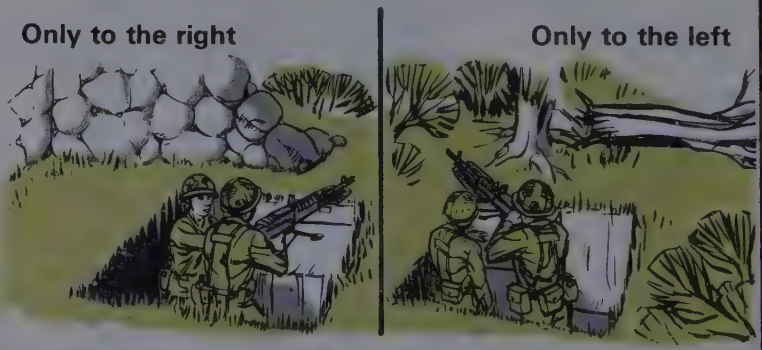
After digging the hole, reduce the height of the gun by digging down the tripod platform as much as you can. **Don't dig it so deep that the gun cannot be traversed across your entire sector of fire.**

**Don't put the tripod legs too close to the edge of your hole or the firing platform may collapse.**

Make your range card **after** you have lowered the firing platform.




When you have a three-man crew for the machinegun, have the ammunition bearer prepare an individual fighting position either to the right or left of the gun position. Connect his position to the gun with a crawling-depth trench so that he can bring over ammunition or replace one of the men on the gun as necessary.

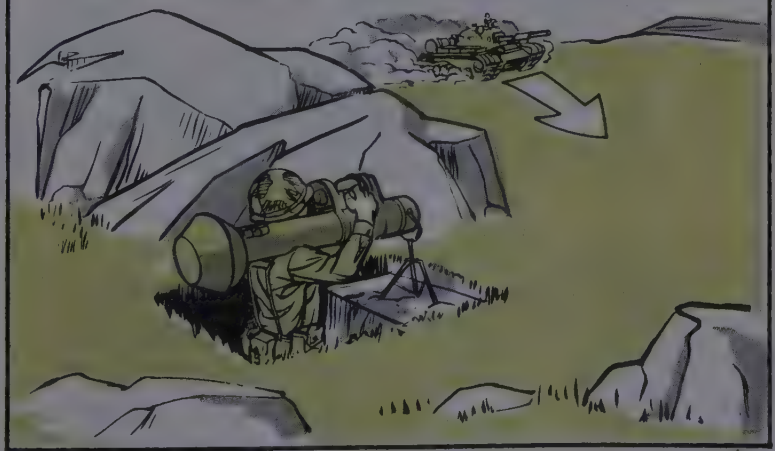



In some positions you may not be able to fire to both sides of the frontal protection. If so, modify your hole accordingly.

## DRAGON POSITIONS

Like any other weapon organic to the platoon, the Dragon can be employed from hasty or improved positions. Keep in mind that the Dragon has a backblast and a muzzle blast. When you fire the weapon from an improved position, the muzzle end of the launcher must extend 6 inches beyond the front of the hole and the rear of the launcher should extend out over the rear of the hole.

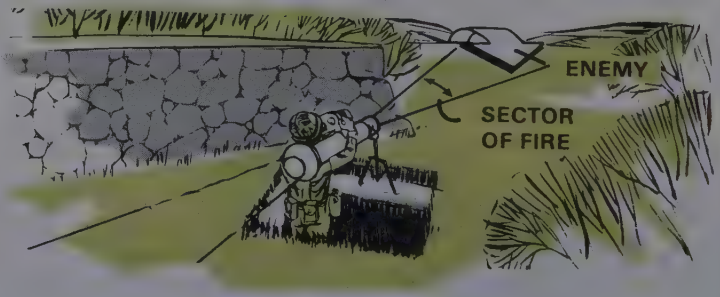
As the missile leaves the launcher, stabilizing fins unfold. You must leave room for these fins, so keep the weapon at least 6 inches above the ground when you fire. Because of this height of the Dragon gunner above ground level, the frontal protection should be high enough to hide both his head and, if possible, the backblast of the weapon.



There will be times when the Dragon can be fired only in one direction, and you will adjust your position to provide you cover and concealment from all other directions. However, in other situations you will want to fire the weapon both straight ahead and to the oblique.

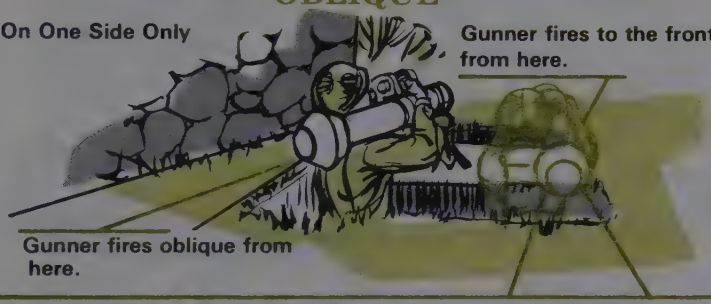
## FIRE ONLY TO THE OBLIQUE

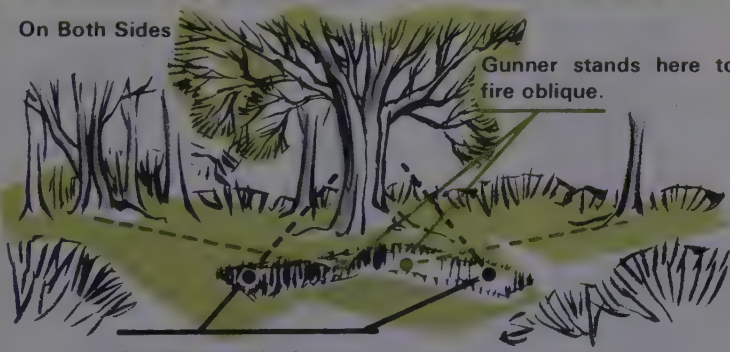
When the Dragon is to fire in only one direction, it should be to the oblique so that the position is protected from frontal fires and the target is engaged from the flank.




Note that the hole is dug at an angle to the frontal protection. This is to reduce the possibility of trapping the backblast in the hole.

## FIRE TO THE FRONT AND TO OBLIQUE

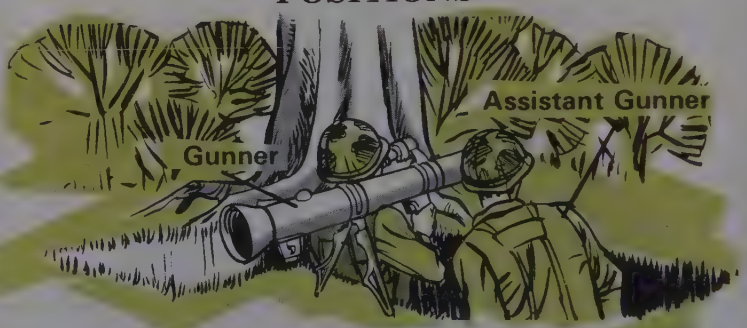



## OVERHEAD COVER

Overhead cover for individuals is constructed as it is for any position. The size should be large enough for the tracker and missiles as well as the gunner.

## 90-MM RECOILLESS RIFLE POSITIONS




Positions for the 90-mm recoilless rifle can be constructed like Dragon positions. However, since it takes two men to keep the weapon in operation, the hole will have to be a little longer when firing to the right side of the frontal protection. This lets the assistant gunner work from the right side of the weapon.

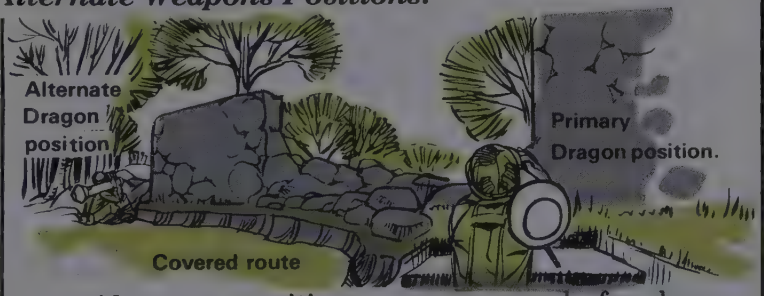
## FURTHER IMPROVEMENTS IN THE PLATOON POSITION

The longer a platoon stays in a position it is to retain, the better prepared that position should be to defeat an enemy attack -- especially if the company team mission is to retain a battle position or organize a strongpoint. The exact priority of tasks will be specified by the team commander or platoon leader and will depend on

the time and assets available. Typical actions to further improve or harden fighting positions include:

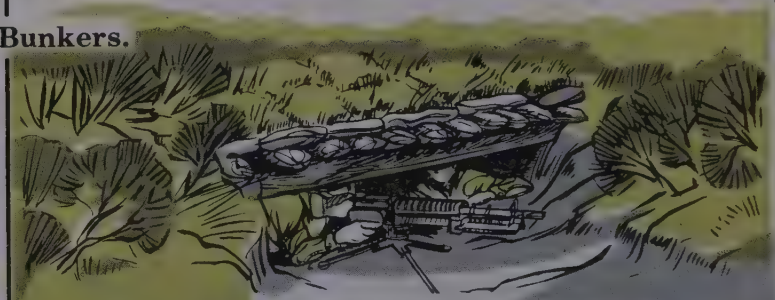
- **constructing alternate weapons positions.**
- **constructing bunkers.**
- **constructing trenches, CP bunkers *(with engineer support).***

***Alternate Weapons Positions.***




Alternate positions are prepared for key weapons. If time permits, construct alternate positions for other weapons. Selection and preparation of alternate positions is of a high priority for the Dragon as this weapon is relatively easy to detect. When an alternate position is selected, its preparation and the selection of a covered route to it which will allow movement under fire are critical.

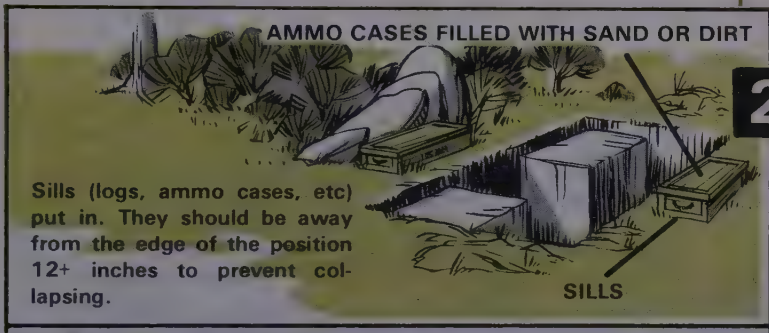
**Bunkers.**

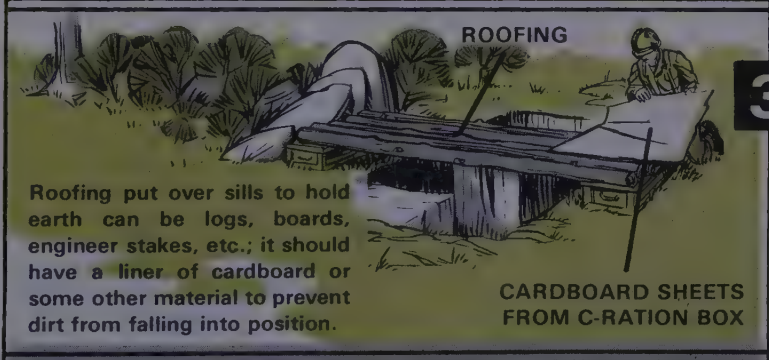


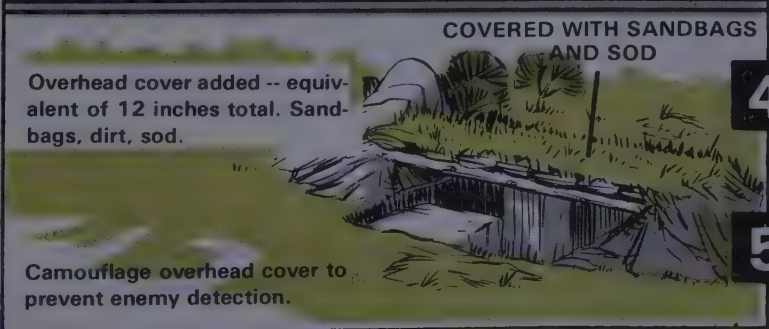
Bunkers can be prepared for weapons, particularly machineguns, to allow them to fire even when receiving indirect fire. The disadvantages of bunkers are the restriction of fields of fire and difficulty to camouflage. To prevent easy detection and destruction by enemy cannon fire, bunkers are built as close to ground level as possible and well concealed. Overhead protection can normally be made thick enough (**12 inches or more**) to defeat shell fragmentation, but seldom will you have enough time or resources without engineer support to provide protection from a direct hit.

**1**

**Bunkers normally start as fighting positions and overhead cover is added.**


AMMO CASES FILLED WITH SAND OR DIRT
2
Sills (logs, ammo cases, etc) put in. They should be away from the edge of the position 12+ inches to prevent collapsing.
SILLS

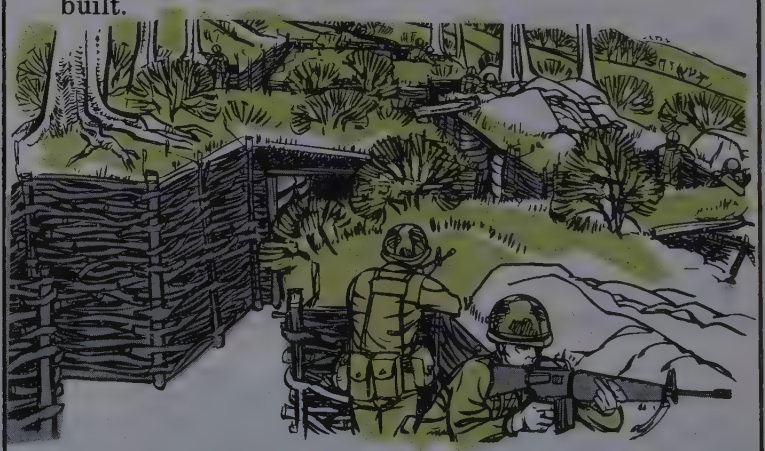

ROOFING
3
Roofing put over sills to hold earth can be logs, boards, engineer stakes, etc.; it should have a liner of cardboard or some other material to prevent dirt from falling into position.
CARDBOARD SHEETS FROM C-RATION BOX


COVERED WITH SANDBAGS AND SOD
Overhead cover added -- equivalent of 12 inches total. Sandbags, dirt, sod.
4
5
Camouflage overhead cover to prevent enemy detection.

## Trenches

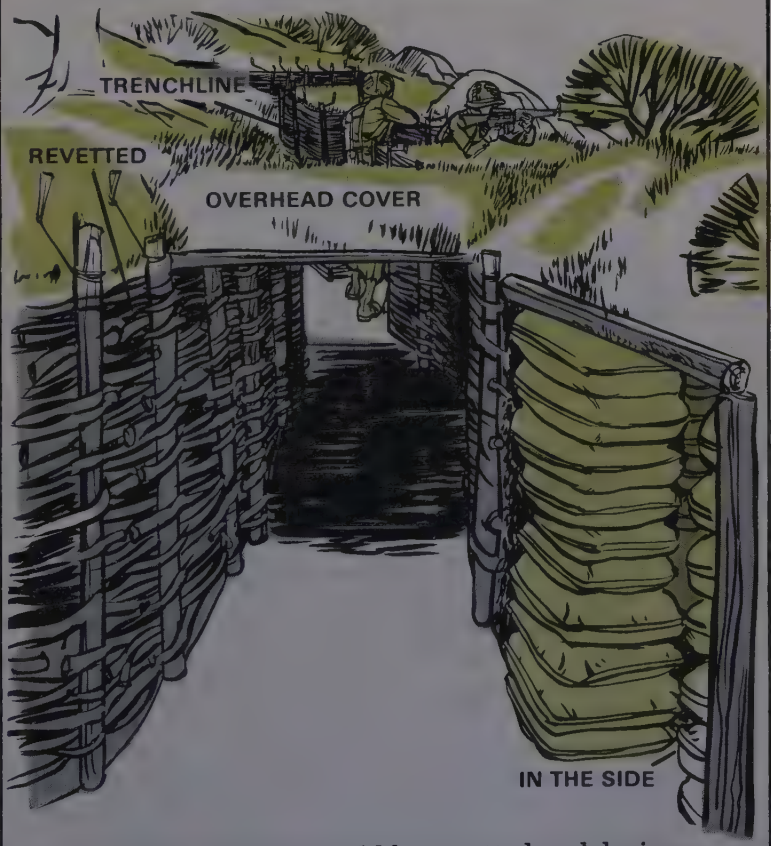
When time and support are available, trenches can be constructed to give the platoon a better ability to reposition men and weapons to meet enemy attacks from different directions.

The depth of the trench is normally a function of the type of support available to construct them. Without engineer support, crawling trenches **(about 3 feet deep by 2 feet wide)** are normally built.



The trench is marked out before construction is begun to take advantage of all the natural cover and concealment available. The trench should zig-zag to prevent the enemy from being able to fire down a long section of trench. Fighting positions are constructed along the trench.

Overhead cover is constructed either into the side of the trench or on the trenchline.




The trenchline should be revetted and drainage sumps constructed as time permits.

# APPENDIX H

## WORKING WITH HELICOPTERS

### *ORGANIZATION*

Basic to working with helicopters is an understanding of **HOW** the squad will organize to be moved.

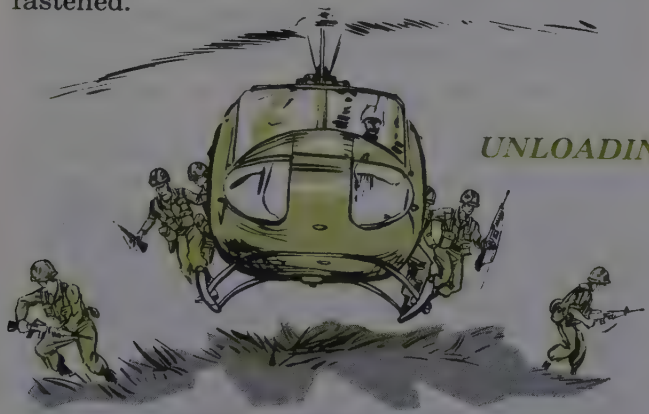
The senior man in the aircraft load **(chalk)** is the chalk commander. Depending upon several factors, a squad may consist of one or more chalks. The squad leader should insure that a chalk leader is appointed for each aircraft and that the squad practices cross-loading (the distribution of key weapons, equipment, and personnel among aircraft) in the event of multiple chalks. The squad leader should ride the lead aircraft if the squad is broken down into two **(or more)** chalks in order to establish immediate control of the squad portion in the landing zone **(LZ).**

### *LOADING PLAN*

Aircraft loads are determined by a number of factors, including air density, amount of fuel on board, age/maintenance of the aircraft, and the amount of equipment each soldier is carrying. Your unit will be informed of the aircraft capabilities prior to a mission and loading plans will be formed.

## *LOADING*

Helicopter loading must be conducted fast and safely. Unless prohibited by safety, troops should load from both sides of the aircraft. Equipment carried aboard must be secured either by hand or by tie-downs. Seat troops according to prescribed seating procedures. All safety belts must be fastened.



## *UNLOADING*

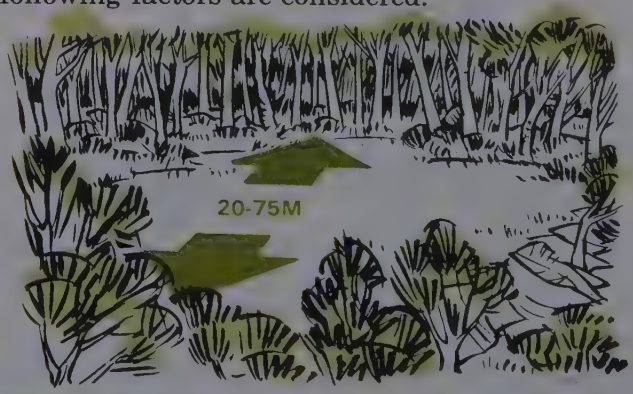
When approaching the landing zone, the pilot or crew chief will orient the chalk commander on the LZ. After landing, or upon stabilizing the aircraft, the pilot or crew chief will give the signal to exit the aircraft. At that time, troops unfasten safety belts and exit rapidly but carefully. If the helicopter cannot land, it will hover while troops off-load under the direction of the crew. Normally, two men exit from opposite doors at the same time to avoid tilting the aircraft. After exiting the aircraft, troops should move away from the rotor blades.

## *SELECTION AND SECURITY OF HELICOPTER PICKUP ZONES*

While landing zones in which the squad will be landed are normally selected by senior commanders, squads are often tasked with the responsibility of selecting and securing their own helicopter pickup zones. Patrols and antiarmor ambushes are examples of situations that may require helicopter extraction on pickup zones selected and secured by a squad.

### SELECTION

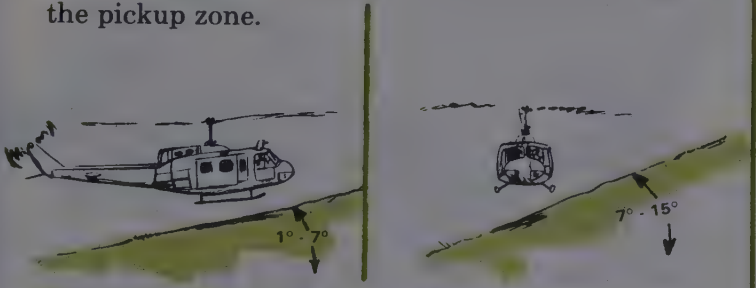
In selecting helicopter pickup zones, the following factors are considered:




**SIZE OF LANDING POINT.** As a guide, a helicopter requires a relatively level area 20-75 meters in diameter for landing, depending upon the type of helicopter used. Generally speaking, a helicopter will require more usable landing area at night than during the day.

**NUMBER OF HELICOPTERS USED.** An important factor is the number of helicopters required to land simultaneously at one location. It may be necessary to establish two landing sites, or to land aircraft in successive flights at a single site if a single multi-aircraft site cannot be prepared.

**SURFACE CONDITIONS.** The surface must be firm enough to prevent helicopters from bogging down, creating excessive dust, or blowing snow. Rotor wash on dusty, sandy, or snow-covered surfaces may cause loss of visual contact with the ground and should be avoided, especially at night. Loose debris that may cause damage to the rotor blades or turbine engines must be removed from the pickup zone.



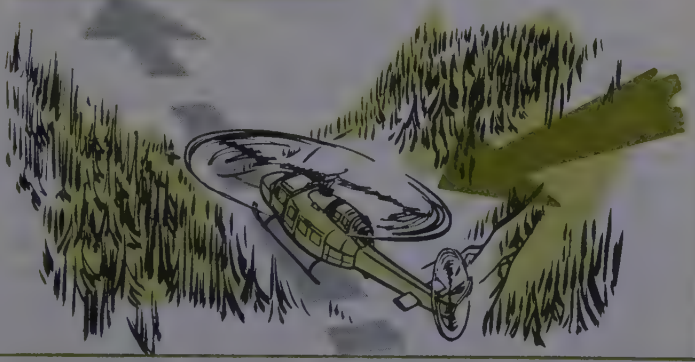

**GROUND SLOPE.** Normally, if the ground slope is greater than 15 degrees, helicopters cannot land safely. When the ground slope is under 7 degrees, helicopters should land upslope. In areas where the ground slope is from 7 to 15 degrees, aircraft must land and park sideslope. It is sometimes possible, however, for helicopters to hover over ground slopes inclined greater than 15 degrees to load personnel or supplies.

## BEST LANDING/TAKEOFF DIRECTION

## APPROACH/DEPARTURE DIRECTIONS.

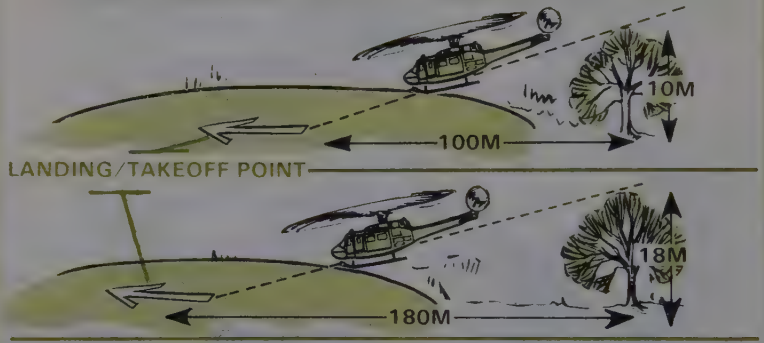
The direction of landing should be generally into the wind, especially at night. However, if there is only one satisfactory approach direction due to obstacles or tactical situation, or to make maximum use of available landing area, most aircraft can land with a crosswind **(10 knots or less)** or tailwind **(5 knots or less).** The same considerations apply to departure of aircraft from a pickup zone.

IF YOU HAVE ONLY ONE ROUTE IN/OUT, WIND BECOMES VERY IMPORTANT.



**PREVAILING WINDS.** Of the two factors -- approach/departure route and prevailing wind -- the best approach/departure route is the more important factor unless the crosswind velocity exceeds 10 knots. The ability to land and take off downwind will vary, depending upon the type of aircraft. Smaller aircraft can accept less crosswind or tailwind than larger, more powerful aircraft.

**LOADS.** Most helicopters cannot ascend or descend vertically when fully loaded; therefore, a larger landing area and better approach and departure routes are required for fully loaded helicopters than for lightly loaded ones.




**OBSTACLES.** Landing sites should be free of tall trees, telephone or power lines, or similar obstructions on the approach or departure ends of the landing site that may interfere with helicopter landings or takeoffs. Obstructions within the landing site **(i.e., rocks, stumps, holes)** that cannot be eliminated must be clearly marked. For planning purposes, an obstacle ratio of 10 to 1 will be used **(i.e., a 10-meter tree needs 100 meters of horizontal clearance from landing or takeoff points if aircraft must approach or depart directly over it).**

When possible, alternate sites should be selected because enemy action or a change in the tactical or logistical situation may negate the use of primary pickup zones.

## SECURITY

Pickup zones must facilitate helicopter extraction of the squad and offer some degree of security from enemy observation and direct fire. Good pickup zones will allow helicopter extraction of a squad without exposing the squad or the aircraft to unnecessary risks.

Security should normally be established around the entire perimeter of the pickup zone. Fire team sectors may be established or, if necessary, two-man positions may be established to provide all-round security. Elements must be shifted after the initial flight(s) to maintain security.

To assist in the security of the pickup zone, supporting fires should be planned and coordinated, and claymore mines should be positioned. Automatic weapons must be positioned carefully to insure maximum effectiveness. Security elements must remain alert. Care must be taken to insure that all personnel remain hidden so that the location of the pickup zone is not compromised.

## SAFETY

*The safety of your men is your responsibility. Some safety rules to observe when in or around a helicopter are:*

- ☑ *Never walk behind a helicopter.*
- ☑ *Never approach a helicopter from the rear or front.*
- ☑ *Keep body low when approaching a helicopter.*
- ☑ *Keep safety belts fastened when airborne.*
- ☑ *Insure weapons are clear and on safe.*
- ☑ *Keep radio antennas down and secured.*
- ☑ *Keep hand grenades secured inside a container when riding helicopters.*
- ☑ *Don't jump from a hovering helicopter until told to do so by a member of the crew.*

## FIELD SANITATION AND HYGIENE

Casualties due to sickness and disease far outnumber battle casualties in any conflict. Enforcing good standards of field sanitation and hygiene is the best way to reduce sickness and disease in a field environment.

As the first link in the chain of command, the squad leader has a major responsibility in field sanitation and hygiene. He must strictly enforce all programs dealing with the health and well-being of his men.

**The squad leader's duties fall into three basic areas**

1 DISEASE PREVENTION

2 PERSONAL HYGIENE

3 FIRST AID

*DISEASE PREVENTION.* Five general categories of disease impact on the health of the squad. Preventive measures are simple and effective:

| *TYPES OF DISEASE* | *PREVENTIVE MEASURES* |
|---|---|
| Respiratory | **Personal hygiene, immunizations.** |
| Intestinal | **Personal hygiene, consume only authorized food and beverages.** |
| Insect borne | **Personal hygiene, field sanitation, individual and chemical measures.** |
| Venereal | **Personal hygiene, education, avoidance, prophylaxis, treatment.** |
| **Miscellaneous** ***(Communicable diseases, athlete's foot, tetanus, etc.)*** | **Personal hygiene, immunizations.** |

*PERSONAL HYGIENE.* Personal hygiene is the best preventive – there is no substitute for keeping clean. The most important role of the squad leader in this area is to ***SET THE EXAMPLE.*** He must also insure proper facilities (latrines, washing points) are provided, that squad members are trained in field hygiene, and insure that proper standards and unit SOPs are enforced.

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*KEEP CLEAN.* Situation permitting, your men should bathe daily. As a minimum, feet, underarms, etc., should be washed.

---

*HAIR SHOULD BE SHORT.* Hair should be kept trimmed and clean. If necessary, hand clippers should be requested to insure hair is cut.

---

*SHAVE DAILY.* Unless prevented by the tactical situation or hampered by a shortage of water, soldiers should shave daily.

---

*CLOTHING AND BEDDING MUST BE CLEAN.* Dirty or insect-infested clothing and bedding can defeat any effort directed at keeping the body clean. Clothing, to include socks, should be exchanged/washed frequently. Bedding should be washed or aired out in direct sunlight.

**FOOT CARE.** Special attention must be given to foot care. Boots must be fitted properly and broken in. Socks must be the proper size and changed daily. Feet should be powdered with issue foot powder as socks are changed. Feet should be washed with soap and water daily.

During periods of extended foot movement and especially during periods of adverse weather (heavy rain, severe cold), regular foot inspections should be held. When possible, the squad leader should be accompanied by a medic who can supervise and assist in the treatment of blisters and other minor problems.

***SANITATION.*** The squad leader must supervise and enforce strict standards of sanitation:

- ☑ **Consume food and water only from authorized sources. When separated from an approved water source, water must be treated with purification tablets or by boiling.**
- ☑ **Latrines or cat holes must be used at all times. They must be filled in and, where applicable, marked. Wash points should be sited adjacent to latrines, and soldiers should wash their hands after using the latrine.**

- [x] **Mess equipment must be kept clean.**

- [x] **Refuse must be buried. Visible refuse is not only a major camouflage violation, but it draws disease-spreading flies and insects. Refuse pits should be dug on static positions and should be deep enough (at least 4 feet) so that covered pits will not be rooted up by animals.**

- [x] **In conjunction with the use of refuse pits, defensive positions, assembly areas, etc., must be well policed. This reduces the number of insects and disease-carrying rodents that are attracted by refuse.**

- [x] **Use of communal towels, shaving items, etc., should be avoided.**

**TC 7-1**

**31 DECEMBER 1976**

By Order of the Secretary of the Army:

**BERNARD W. ROGERS**
*General, United States Army*
*Chief of Staff*

Official:

**PAUL T. SMITH**
*Major General, United States Army*
*The Adjutant General*

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